DOCUMENT RESUME

ED 339 853	CE 059 775
AUTHOR	Bruhn, Peter; Guthrie, Hugh
TITLE	Designing Learning Guides for TAFE and Industry.
INSTITUTION	TAFE National Centre for Research and Development, Ltd., Leabrook (Australia).
SPONS AGENCY	Australian Committee on TAFE Curriculum.
REPORT NO	ISBN-0-86397-050-8
PUB DATE	91
NOTE	141p.; Some graphics will not reproduce legibly.
AVAILABLE FROM	TAFE National Centre for Research and Development, Attn: Sales, 252 Kensington Road, Leabrook, South Australia 5068, Australia.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Adult Education; Behavioral Objectives; Competency Based Education; Computer Managed Instruction; Independent Study; *Individualized Instruction; Industrial Training; Job Skills; *Job Training; Learning Activities; Learning Modules; *Material Development; Postsecondary Education; *Programed Instructional Materials; Self Evaluation (Individuals); *Teacher Developed Materials; Technical Education; *Vocational Education
IDENTIFIERS	TAFE (Australia)

ABSTRACT

Intended for industry trainers and Technical and Further Education teachers in Australia, especially those who are consultants to industry, this manual on the design and use of learning guides is presented in two main parts. Part 1 provides basic information on learning guides--why their development is important, what they are, why they should be used, how to make the best use of them, how learning guides fit in with competency-based training, and how to use them with a computer-managed learning approach. Part 2 focuses on design for learning guides and includes discussions on: (1) matching of learning guides with existing resources; (2) evaluation of the learning resources; (3) the learning guide design team; (4) the parts of the learning guide; (5) writing of supplementary learning materials; and (6) presentation guidelines for learning guide writers. Appendixes include a paper on definitions that complements Part 1 and a bibliography of 27 useful resources on award and industry restructuring. An attachment includes three examples of learning guides that have been produced by two industry organizations and a TAFE organization. Also attached is a learning guide on how to write a learning guide. Contents include learning outcomes, needed resources, 12 activities that guide the user through the relevant sections of the manual, self-check sections at the end of each activity, review, final assessment, and annotations of three books for further reading. (YLB)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it

☐ Minor changes have been made to improve reproduction quality

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

M Jones

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED339853

CE059776

Australian Committee on TAFE Curriculum

DESIGNING LEARNING GUIDES FOR TAFE AND INDUSTRY

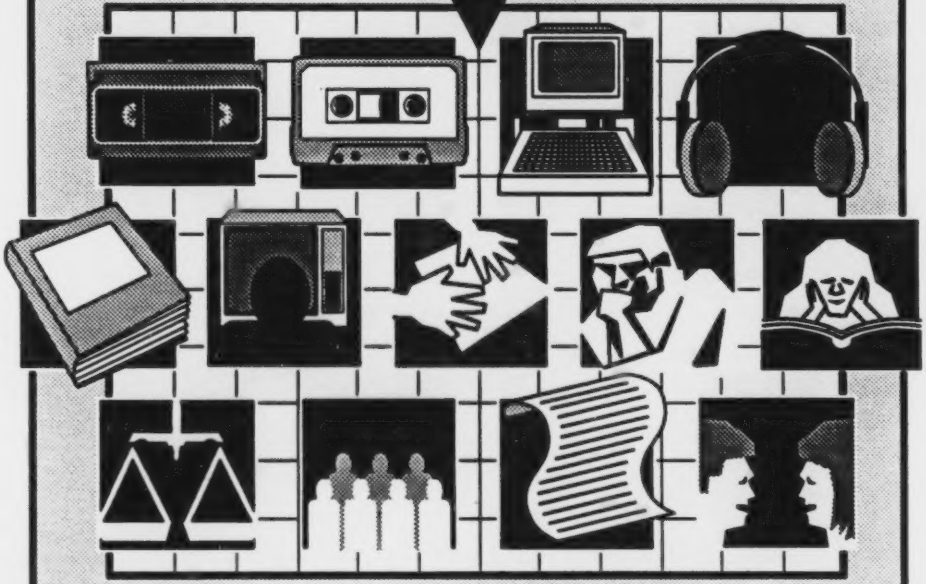
Peter Bruhn and Hugh Guthrie

BEST COPY AVAILABLE

TAFE
TAFE NATIONAL CENTRE FOR RESEARCH AND DEVELOPMENT LTD.

Australian Committee on
TAFE Curriculum

DESIGNING LEARNING GUIDES FOR TAFE AND INDUSTRY



Peter Bruhn and Hugh Guthrie

Adelaide 1991

TAFE
TAFE NATIONAL CENTRE FOR RESEARCH AND DEVELOPMENT LTD.

© TAFE National Centre for Research and Development Ltd., 1991

A.C.N. 007 967 311

Single copies may be made by TAFE Authorities without restriction

ISBN 0 86397 050 8 (Hard copy)
TD/TNC 26.09

Artwork and design: Bain Middleton

Word-processing: Peter Bruhn, Christina Middleton

Editing: Penelope Curtin, Jennifer Turker, Leigh Toop

Published by:
TAFE National Centre for Research and Development Ltd.,
252 Kensington Road,
LEABROOK SA 5068

Printed by A. CAUDELL,
Government Printer, South Australia.

Contents

PREFACE 1

HOW TO USE THIS MANUAL 5

PART 1: Understanding learning guides 7

Section 1 Why is the development of learning guides important now? 9

Section 2 What are learning guides? 11

Section 3 Why use learning guides? 13

Section 4 How do we make the best use of learning guides? 15

Section 5 How do learning guides fit in with competency-based training? 19

Section 6 Can learning guides be used with a computer-managed learning approach? 21

PART 2: Designing learning guides 23

Section 7 Before you begin writing.... 25

Section 8 Matching learning guides with existing resources. 27

Section 9 Evaluating the learning resources. 29

Section 10 The learning guide design team. 33

Section 11 The parts of the learning guide. 35

Section 12 Writing supplementary learning materials. 73

Section 13 Presentation guidelines for learning guide writers. 75

APPENDIX A 89

APPENDIX B 97

LEARNING GUIDES: Examples from education, training and industry 103

LEARNING GUIDE ON DEVELOPING LEARNING GUIDES (How to write a learning guide)

Preface

This manual is intended to meet the growing demand by TAFE and industry for an easy-to-use manual on the design and use of learning guides. This manual is therefore timely in the current context of award and industry restructuring under which Australia's training effort is being improved.

This manual was supported by funds from the Australian Committee on TAFE Curriculum (ACTC). The TAFE National Centre for Research and Development Ltd., based in South Australia, acted as the manager for the project.

Learning guides are a way of allowing learners to acquire knowledge and skills in order to perform industry-based tasks, gain certification for work in their chosen occupation or assist workers who need to be retrained. Learners develop these skills (or competencies) by being directed to a wide variety of learning resources, and by undertaking a series of structured learning activities.

The primary audience for this manual is TAFE teachers, especially those who are consultants to industry on a range of training related matters. Industry trainers will also find this manual of great value.

The manual is not designed for those such as instructional designers, curriculum development officers or educational technologists already experienced in instructional materials development. However, there are elements contained within the manual, which could act as resource material and as 'idea generators'.

To give this manual a national flavour not reflecting any particular State bias, ACTC liaison officers in each State and Territory nominated experienced instructional materials developers to act as an ad hoc advisory committee for this project. We would like to acknowledge these people, without whose input this project would have been much more difficult to complete.

We would like to acknowledge the following people for their help throughout the project. We thank them for all their time and effort. They collected materials and provided comments on the various drafts of the manual.

- Robert King and Greg Colgrave, Woodside Off-Shore Petroleum, Karratha, Western Australia
- Richard Hartzell, Educational Development, TAFE External Studies, Perth, Western Australia
- Chris Ayles, Deputy Head, Tea Tree Gully College of TAFE, Modbury, South Australia
- Ian Mitchell, Senior Lecturer in Distance Education, Distance Education Department, School of Advanced Studies in Education University of South Australia, Underdale Campus, South Australia
- Liz Packer, Educational Resources Development Officer, Regency College Hotel School, Regency College of TAFE, South Australia
- Kevin Murray, Louise Turnbull, Maureen Joyce, Bud Jackson and Anne Wilson, Learning Materials Development Unit, Open College of TAFE, Redfern, NSW
- Keith Tucker, Marketing Manager, Computer Managed Learning, Unisys Australia Limited, Milsons Point, NSW
- Margrit Stocker, Co-ordinator, Open Learning Centre, Training and Development, Slab and Plate Products Division, BHP Steel Wollongong, NSW
- Les Gregory, Superintendent, Training and Development, Slab and Plate Products Division, BHP Steel, Port Kembla Steelworks
- Jim McMurtie and Bob Russell, TAFE Curriculum Management and Accreditation Unit, TAFE Professional Support Services, Office of Tertiary Education, Department of Education and Training, Darwin, Northern Territory
- Robyn Gottschalk, Co-ordinator, Police and Transport Administration, External Studies Department, Hobart Technical College, North Hobart, Tasmania

- Frank Miller, Executive Director and Company Secretary and Nev Pryor, Research and Development Manager, ELMS, Learning Management Systems Limited, Milton, Queensland
- Peter Newnham, Acting Associate Director - Electrical and Electronic Engineering and Noel Ryan, Curriculum Designer, BEVFET, South Brisbane, Queensland
- Mal Chisholm, Industry Training Consultant, Queensland Distance Education College, Brisbane, Queensland
- Mavis Bird, Media Manager and her staff, TAFE Off-Campus Co-ordinating Authority, RMIT-Victoria University of Technology, Melbourne, Victoria
- Frank Gallagher, Manager - Instructional Design, Telecom Training Services, South Melbourne, Victoria
- Lusia Guthrie, Manufacturing Manager, Faulding Pharmaceuticals, Salisbury South, South Australia

In addition we would like to thank Bain and Christina Middleton for their contribution to the design and detailed artwork for the publication, as well as their help with the word processing.

Penelope Curtin, Jennifer Turker and Leigh Toop undertook some detailed editing of the drafts while Peter Thomson commented on the sections related to assessment and competence. Other Centre staff also provided valuable input to the manual and its contents.

Last, but not least, the senior author would like to thank his wife Tonia for all her support during the writing of this manual.

Peter Bruhn
Hugh Guthrie

July 1991

How to use this manual

In keeping with a learning guide's theme of flexibility, there are a number of options available for using this manual.

OPTION 1

If you are uncertain about what a learning guide is, you should begin by reading Part 1, Sections 1-6 of the manual, the complementary paper on definitions in Appendix A and useful resources on award and industry restructuring in Appendix B. You may also wish to use the learning guide on developing learning guides (*How to write a learning guide*) which has been designed to support this publication.

OPTION 2

If you need to develop learning guides, but are uncertain how to go about collecting and evaluating the learning resources necessary to support the guides, read Part 2, Sections 7-9.

OPTION 3

If you are deciding whether to write the guide alone or establish a development team, read Part 2, Section 10.

OPTION 4

If you believe you have reasonable understanding of what learning guides are and how they can be used, and you have collected and appraised your learning resources, you can go directly to the design sections (Part 2, Sections 11-13 and the learning guide examples). Using the learning guide on *How to write a learning guide*, which complements this manual, you can begin developing your guide.

OPTION 5

More experienced learning guide writers may like to begin by reviewing the learning guide examples at the end of the manual and the sections on writing supplementary materials and presentation guidelines.

OPTION 6

Instructional designers, educational materials developers and curriculum and training consultants can use the manual as a reference tool for guiding learning guide writers through the various development stages. The examples included throughout the manual can be used as idea generators.

We have left plenty of blank space in this manual to allow you to annotate, cross reference and add personal comments to make this publication more useful to you.

A learning guide entitled *How to write a learning guide* has also been produced to complement this manual.

Part 1

Understanding learning guides

Main themes:

- Why is the development of learning guides important now?
- What are learning guides?
- Why use learning guides?
- How do we make the best use of learning guides?
- How do learning guides fit in with competency-based training?
- Can learning guides be used with a computer-managed learning approach?

Why is the development of learning guides important now?

At no other time in the past two decades has there been such a conjunction of influences that will impact more on the way we deliver education and training. Rapid technological change, industrial and award restructuring, skills formation, multi-skilling/broadbanding and the Training Guarantee Scheme are but a few of these major changes.

Traditional training methods cannot respond quickly enough to the requirements of an organisation which needs to maintain a skilled workforce. Industry and award restructuring is leading to the progressive break down of job demarcations. Moreover, as the need for a multi-skilled worker emerges it will place an even greater demand on training methods to be flexible, efficient and cost-effective.

Learning guides, when properly designed and used, can make a major contribution to the education and training of a skilled workforce. This manual will help you to design such learning guides.

Barry Jones, MHR, former Federal Minister for Science believes that few jobs for which people are now being trained will be in existence in a recognisably similar form by the year 2000. In addition, the tradition of one job for life, or a succession of jobs within a single enterprise, will become increasingly rare. It is possible that an individual may, throughout their working life, have six or more major career changes. Influenced by technological change, socio-political and economic factors, or by choice, the need for people to adopt a 'life-long orientation to learning' (that is, the need for people to acknowledge that their learning doesn't stop when they 'leave school') will have major ramifications for vocational education and training.

The retraining of large groups of workers as their jobs disappear or radically change will rely heavily on the effectiveness and efficiency of our education and training efforts. In part it will draw on the practical experiences of the many educators and trainers currently applying their knowledge on how adults learn. The integration of these principles of adult learning and the so called transferable skills (such as communication skills, problem-solving, decision-making, research skills etc.) will become mandatory in learning design — including designing learning guides.

Learning guides, along with the existing and newer training technologies associated with open learning and more flexible approaches to delivery , will help industry and formal vocational training agencies such as TAFE to meet their respective training/retraining responsibilities.

The following factors will influence how learning guides are designed and used:

- competency-based training and assessment
- the increasing importance of workplace assessment
- more formalised and informal on-the-job training
- better recognition of prior learning
- the increasing use of open learning and more flexible modes of delivery of learning
- more individualised learning.

A bibliography - *Getting further information on award and industry restructuring* - is included in Appendix B of this manual for those teachers and trainers needing information about the above issues.

What are learning guides?

A learning guide is a structured booklet designed to direct the learner through a series of learning activities and to a range of resources to achieve specified competencies or learning outcomes. It can be seen as a road map or set of directions that shows the learner how to get from where they are, to where they want to be (for example, employed and skilled in their chosen (or a new) occupation). It directs the learner to the appropriate learning resources, where to find them, and to the **essential** information contained within these resources. It also directs them to additional resources for further reading if the learner wishes to pursue the topic/subject matter in more detail. It describes learning activities which they must undertake to acquire the requisite knowledge and skills, as well as providing feedback in the form of self-assessment questions (formative assessment), sometimes using a computer-based testing system to provide that feedback.

These learner-centred booklets are usually in a printed format. The learning guide can vary in length. It may range from 10-20 pages and take a learner 8-10 hours to complete. However, where learning guides are used in industry they tend to be shorter (in the 1-4 hour range). Learning guides are not textbooks. Every word counts! They usually do not contain large amounts of content-specific information themselves. Learning modules on the other hand are usually much larger and basically self-contained; that is, they contain all the information **and** resources a learner is likely to need to achieve the learning outcomes. Learning guides are designed to meet a specific learning outcome or develop a specified competency rather than cover an entire topic or subject area.

The guide, to use computer jargon, should be 'user-friendly' and adhere to basic principles of adult learning and instructional design. More importantly, it should be well-designed so the learner is motivated to achieve the learning outcomes or competencies in an enjoyable, interesting and rewarding way.

Although the guide states the standard that must be achieved before the learner is considered competent, and can direct the learner to the appropriate competency test where the learner must actually **demonstate** the skill *(summative assessment)*, **it is not the learning guide which does the final assessment of the learner's competency.** That responsibility still resides with the teacher/trainer or assessor.

This manual is designed to help you develop learning guides because:

- they are easier and quicker to write than 'modules'
- they can be readily revised and updated
- they are much less expensive to produce than 'modules'
- they use resources already available
- they help the learner practise the skills of accessing and using information
- they help provide for a more cost-effective use of educational resources.

Although the term learning module is frequently used in TAFE and industry, there is still some confusion about the use of this and its companion terms, study guide, subject guide and teacher's/instructor's guide.

The paper, *Guides or modules? - sorting out the definitions* (Appendix A) may be useful background information for:

- instructional materials development teams
- course/programme administrators
- teachers/trainers
- curriculum development staff
- instructional designers/educational technologists

where there is a need to achieve an agreed position on definitions. This is important when educational institutions or other organisations are collaborating on national projects involving the various States/Territories in the development of instructional materials.

If you are uncertain about any of the terms you should read Appendix A now. Otherwise continue to the next section.

A bibliography - *Getting further information on award and industry restructuring* - is included in Appendix B of this manual for those teachers and trainers needing information about those issues.

Why use learning guides? *

Learning guides:

- can contribute significantly to reducing learner anxiety and stress about learning new knowledge and skills by providing them with a road map to guide them through the learning process.
- direct learners to a spectrum of resources, many of which already exist in organisations but are often under-utilised.
- are relatively inexpensive to produce, distribute and update, and represent, for the most part, a one-off cost.
- are easier to write than their module counterpart, as pro formas or templates can be developed by experienced instructional materials developers for novice learning guide writers to follow.
- can increase the usefulness of resources by including additional statements by the writer (known as value-added comments) which highlight any limitations or exceptional features about the resources.
- can be a mechanism by which specialist knowledge of workers can be recorded and retained, and which may otherwise be lost as experienced staff leave the organisation.
- are not as instructionally demanding or as expensive to produce as computer-assisted learning programmes because they are print-based and do not require the development time of such resources.
- encourage learners to use their own learning style.
- support the use of computers or other advanced training delivery technologies, where these are proven to be cost-effective.
- are relatively inexpensive to produce and reproduce, allowing learners to retain them, write notes in them and refer to them at any time.
- are not necessarily dependent on technology to be used to their full potential.

---

* This section has been adapted from material developed by Frank Miller and Nev Pryor of ELMS learning Management Systems, Milton, Queensland

- address only one specific outcome or competency (or a small number of related outcomes) at a time and therefore are well suited for integration into competency-based training programmes.
- enable training programmes to be tailored to an individual learner's needs.
- are ideal for 'on-site' training or retraining.
- can be integrated with either traditional training methods or technology-based delivery systems.
- can be relatively easily updated to allow new resources or learning activities to be incorporated.
- provide a 'mix-and-match' learning environment from which specific courses or training programmes can be assembled.
- allow cost-effective course revisions by the addition and/or deletion of content areas without having to reconstruct the entire course.
- allow companies or organisations to respond quickly to the need to develop learning materials to train staff to operate new equipment or introduce new industrial techniques or processes.

Learning guides are specifically designed around adult learning principles which are characterized by the following:

- adult learners generally prefer to be directed to resources and learning activities given their time constraints (work and/or personal life).
- adult learners need to know what they are expected to learn, what they have to do (in terms of reading, writing and 'hands-on' activities) and what level of proficiency they are required to achieve to complete the task.
- adult learners engage in learning in order to gain information or skills to help them deal with a specific situation or solve a problem. Adults want results!
- adults usually want results now! They are concerned with the acquisition of knowledge and skills that can be used immediately.
- adult learners require training programmes to have well-defined outcomes and a clearly established pathway to the acquisition of specific knowledge or skills.

How do we make the best use of learning guides?

Learning guides allow knowledge and skills to be presented in a format which is accessible to learners, whenever and wherever such information is required. Importantly, learning guides direct learners to, and through, a learning process which is based on the experience of the learning guide's writers. The learning guide is designed to ensure that the widest range of resources is used. Learning resources encompass such things as textbooks, manuals, workshop exercises, audio or videocassettes, individual, small and large group activities, simulations, site visits, computer-based delivery approaches, face-to-face discussions with teachers, trainers or colleagues etc.

All essential resources and activities available are presented to the learner in the guide. Learners, supported by guides (which act, in effect, as personal mentors) work through the learning activities largely at their own pace and using a preferred learning style. If necessary, the guides can direct the learner to specified and timetabled small or large group learning activities. In-text questions and self-assessment questions are an integral part of the guide material, answers being discussed either directly with a teacher/trainer, or obtained from the guide, or on demand from a computer terminal. Computer-based systems can provide automatic correction of self-assessment items and, if appropriate, can refer learners to appropriate remedial activities. Assessment of overall competence, that is, "Is the learner able to do the task?" is normally undertaken by the teacher/trainer under workplace conditions (or as close to 'real-world' conditions as possible). Although they may be referred to in the guide, such assessment activities do not form part of it.

Learning guides should be physically separable from the learning resources which support them. However, the two components, guide and resources, may be brought together in a package for learner convenience if appropriate.

The separation of learning guides from resources is adopted for the following reasons:

- in most cases a learning guide need simply refer to resources which already exist, are readily accessible and which it is often difficult on cost grounds to justify reproducing and including with every guide. In some cases, the same resource could be referred to by more than one guide.
- in some instances, once the structured learning process is over, learners may wish simply to refer to resources themselves but without the support of a guide.
- the cost of extracting and republishing already existing learning resource material for inclusion in guides may involve copyright complications which can be avoided simply by the separating the guides from their associated resources.
- by keeping the guide component as small as possible, they can be provided and distributed in relatively large quantities at minimal cost.
- learning guides support a mature search and learn approach to locating and obtaining resources, a process which is important in both the workplace and in an educational context.
- resources will not always be in print form, and thus may not necessarily be conveniently integrated with guides.

  By keeping resources separate, their integrity is maintained and their usefulness to the learner (as an aid to learning) is enhanced because they represent a comprehensive set of resources in a variety of media. This helps to support a range of learning styles and ensures that those with limited availability are used efficiently and effectively.
- by separating the learning guide from the resources, teachers and trainers who are developing learning guides are less likely to be put off by the task, particularly in cases when resources already exist and therefore simply need to be referred to, or commented upon, to make their content more relevant. Significant rewriting of resource materials may be unwarranted.

- the learning guide is usually that component of a learning programme which contains the 'life experience' and 'wisdom' of the learning guide's writer. It gives structure and sequence to the learning process. The resources , although relevant and necessary, may or may not be stimulating or even instructionally sound; however, with the support of the guide even less than perfect resources can be effective in supporting learning.

- combining guides and resources into a single document (such as a learning module) can result in unnecessary and costly design work. This may not be justified either in terms of cost or in increased learning effectiveness.

- learning guides should be easily updated, *not the resources*. The fact that learning resources are out-of-date can be highlighted in the appropriate section of the learning guide while new learning resources can be readily incorporated in the learning guides when identified. Therefore, guides can be updated on an annual basis, or more frequently if necessary. On the other hand the resources themselves can have life spans of several years or more.

- the ease with which learning guides can be updated enables changes in workplace technology, new legislation and better resource materials to be incorporated rapidly.

- by using the learning guide approach, writers are discouraged from the tendency to write another textbook or set of lecture notes when adequate resources already exist.

How do learning guides fit in with competency-based training?

Although competency-based training is not new to vocational education and training, it has gained a new impetus as a means of linking national skill standards to the training function under industry restructuring and the associated restructuring of industrial awards.

The basic principles of competency-based training (CBT) are:

- training is based on carefully identified competencies which are made explicit to both the teacher/trainer, the learner, industry and the wider community
- criteria for assessing achievement are based on workplace standards
- the learning programme provides for individual development and assessment for each specified competency
- assessment uses the actual performance of each competency as the main source of evidence of achievement
- learners move through the programme at their own best rate by demonstrating attainment of specified competencies.

A report produced by the TAFE National Centre for Research and Development* gives us further information by defining 'competence' and 'competency-based training'. Competence is the performance of a task to specified standards and in accordance with specified conditions.

A statement of competence describes:

- the *skills* that are used in the performance of the task
- the *standards* of performance of those skills in terms of routine and non-routine skills
- the *conditions* associated with the normal performance of the specified skills.

* Peter Thomson (1991) *Competency-based training: some development and assessment issues for policymakers.* Adelaide: TAFE National Centre for Research and Development.

Competency-based training is a form of training which may include the following characteristics:

- learners can be assessed for their competency at any time they (or their teachers or trainers believe they) are ready
- training can be provided in a modular form if this approach is appropriate or requested by industry
- assessment is for the most part based on **actual demonstration of skills**
- learners can obtain exemption from part of the training (and move to the next unit of work) on the basis of their assessed competences
- learners' results are recorded in terms of a statement of competencies.

One of the aims of this manual is to help put these principles of competency-based training into practice if the guides to be designed require it. The competency-based learning approach is dependent on instructionally-sound, high quality instructional materials. Learning guides are an extremely useful instructional medium for this approach.

Learning guides may be small in size but they are important in competency-based training since they are designed to take major responsibility for routine instruction, guiding the learner to successful achievement of each occupational competency.

Arguably the competency-based training approach cannot reach its full potential without using learning guides in one form or another.

Learning guides are only effective if those who are designing them are skilled in the structure and format of such materials. (Part 2 deals with this in detail.)

Highly structured (where necessary), well-conceived and carefully developed learning guides are needed to make the complex activities of competency-based training effective and efficient.

The use of learning guides enables the fastest learners to move ahead when ready while the slower learners can be given the time they need to master the task. As the majority of routine teaching is taken over by the learning guides, the teacher/trainer is able to work more with individuals or small groups when they need help.

Learning guides, because of their versatility, clearly have an important role in competency-based training.

Can learning guides be used with a computer-managed learning approach?

The answer to the question is of course, "Yes". Many educational institutions and large corporations, such as Telecom Australia, have successfully integrated learning guides with computer-managed learning (CML).

CML as a means of managing learning has certain benefits, including:

- a wide variety of educational resources, not only computer related, can be integrated into learning programmes using CML to monitor access and distribution of resources
- question banks for testing, and the matching of test items to programme objectives can be undertaken by the computer
- immediate feedback to learners on their performance in formative tests
- less time and effort required by the teacher/trainer in 'non-educational' aspects of administering the learning programme.

There is no mandatory requirement that learning guides be used with CML. Learning guides are designed to be used with or without computer support. However, there are circumstances where the use of CML would certainly have advantages over more traditional approaches.

Such circumstances are:

- for keeping track of a variety of learners taking advantage of optional routes through a course or training programme
- where learner numbers are high, and the learning programme requires frequent testing of learners and recording their results

- where learning guides and resources are in constant use all over the organisation
- if learners are geographically distributed throughout a region or State/Territory or nationally, or
- where there is a need for national consistency in the learning programme(s) being delivered.

Remember, it is not the computer that becomes the medium of instruction in a CML approach: that aspect resides with the learning guides and resources (although some computer-based learning may be part of the programme).

Teachers and trainers can still use a range of instructional strategies to achieve specific objectives which may not include any computer-assisted instruction or learning (CAI/CAL). CML offers flexibility of approach while many of the tedious diagnostic/ prescriptive and administrative tasks are controlled by the computer.

Learning guides are **not** dependent on the computer: the computer, however, is dependent on the learning guides to direct the learner to use it at specific times throughout the learning programme.

Guides can be stored in the computer and read directly from a computer screen by the learner, or the learner may prefer to print out a hard copy of the guide for use away from the computer.

A guide to CML has been written by Hugh Guthrie, TAFE National Centre for Research and Development. Produced in 1987, *Computer managed learning - a monograph* focuses on the management of learning using computers.

Part 2

Designing learning guides

Main themes:

- Before you begin writing...
- Matching learning guides with existing resources
- Evaluating the learning resources
- The learning guide design team
- The parts of the learning guide
- Writing supplementary learning materials
- Presentation guidelines for learning guide writers

Before you begin writing...

Before we examine in detail the elements of a learning guide, you will need to have taken the following three actions.

Action 1

You have clearly identified the problem or educational or training need.

- Is it to train operatives to use and maintain new equipment being installed in the organisation?
- Is it to instruct staff members on company policy related to occupational health and safety?
- Is it to give learners:
    - knowledge about techniques or processes? or
    - principles and concepts that need to be understood to perform a specific task? or
    - generic or 'transferable' skills such as the ability to communicate orally or in writing; identify and solve problems; make decisions; adapt to constant change; plan and organise work and time efficiently; access and use information or work as part of a team?

There are obviously many more that relate to your specific needs, but it is important that you have a very clear idea of what it is you want the guide to achieve.

Action 2

The problem or identified need is written down and shown to your colleagues for comment. (We will deal with how to write specific learning outcomes later in this manual.)

For the moment it is sufficient to write a statement which encompasses the major elements of the problem or need as you see it. For example:

> In two months from now the department is changing over our present computer system to PCs integrated into a local area network (LAN). All staff in the department (approximately 200) will need to be trained in the new system.
>
> Due to their heavy work demands it will not be possible to get them together for group learning sessions. The distributor of the system has some excellent videos to cover the basics of the system but we will need to develop learning guides to obtain maximum benefit and allow the staff to practise the input and retrieval of information prior to their directly using the system with clients. On a rostered basis staff can have access to portable micros for experimenting with some of the applications software. Again, we will need guides written to help them as the manuals for some of our software are difficult to use, even for our experienced computer people.

Scenarios such as the above can be shared with other colleagues to ensure that important information has not been omitted. At this stage keep the statement free of any educational or training jargon and write it in fairly general terms.

Action 3

Consult with a training or curriculum consultant or instructional designer (especially if you are new to designing learning guides) to determine if your identified problem or need is best achieved by the use of a learning guide. Remember, the learning guide is one of many educational and training approaches and although it is very versatile and can be used in any number of learning situations, it would be advisable to have its suitability for a specific task confirmed by an education or training specialist.

Matching learning guides with existing resources

As discussed in Part 1, a major advantage of the learning guide is its capacity to link the learner with a range of existing and readily available resources. Many of these may be unknown to a large proportion of the staff because they are hidden away in the Engineering Department or on some staff member's bookshelf who is unaware of its value to other staff members.

The task of gathering together a diffuse collection of resources is by no means easy. Some organisations will have the expertise of a librarian or a 'learning centre co-ordinator', but inevitably the task of searching for the resources needed to meet specific learning outcomes or competencies will fall to the writer of the learning guide.

More importantly, it is the learning guide writer who must decide the value of the resources and determine whether their inclusion is beneficial to the overall learning programme.

In many instances resources suitable for integrating with the learning guide are located *outside the organisation*. The following sources can save time and lots of frustration:

- TAFE National Centre for Reseach and Development through its publications such as the Vocational Education and Training Database (VOCED database), and other Centre publications
- TAFE Clearinghouses in each State/Territory
- Schools and departments of individual TAFE colleges
- Off-campus, distance learning or open learning units attached to TAFE colleges and other tertiary institutes
- State Ministry of Education publications - lots of 'basic' materials, particularly numeracy and literacy
- TAFE teacher networks and special interest groups, both within and across TAFE systems

- Individual companies, especially their technical and public relations sections
- Government departments and statutory bodies, for legislative/regulatory type materials
- Suppliers of equipment and materials
- Professional associations and relevant unions
- Publishers - a good source for reviewing current textbooks
- The National Video Resource Centre located at Moorabbin College of TAFE, Victoria
- Your library's access to the Australian Bibliographic Network (ABN) for locating print and non-print materials located in Australian libraries
- Educational computer databases such as ERIC or AUSTROM (the new Australian CD-ROM database) or similar
- Promotional catalogues by textbook and AV materials producers and distributors.

There is a vast amount of information out there - it's just a matter of being able to access it! The task is not necessarily time consuming if established networks are used to find the materials. Sometimes you may need to establish your own special network where you can share resources, or call on the expertise of your colleagues/friends/ business acquaintances. The major point about networks is to start with one group and take advantage of a multiplier effect by being referred to others and, before long, a good network of expertise is available upon which to draw.

Evaluating the learning resources

Finding the resources is one thing, evaluating how useful they are to your intended learning outcomes is another. Because of the time it takes to evaluate learning materials adequately, it is the one step in the development of learning guides most likely to get only cursory attention.

The importance of doing this evaluation properly cannot be underestimated. As each resource is an integral component of the learning programme it is critical that each is assessed against a set of standards or some checklist to determine its appropriateness in meeting the guide's objectives. In resource evaluation, even if only a small portion of the resource is of value to you (say the first 5 minutes of a 30 minute video) it should be assessed and used in that light. In addition, a record of the outcomes of the evaluation should be kept. It should be in a form that is accessible and useable to future learning guide developers.

Many forms or checklists already exist that can be used in resource evaluation and can be found in textbooks on instructional media or educational evaluation. Professional educational media and training journals, for example *Educational Technology* or *Training and Development*, routinely produce checklists and appraisal sheets for evaluating resources. A more general treatment to the evaluation of resources is presented by Rowntree (1986)* in the form of a series of questions. This checklist is reproduced in a modified form over the page.

- Derek Rowntree. (1986). Teaching through self-instruction. *A practical handbook for course developers.* Kogan Page, London/Nichols Publishing Co., New York

Checklist for evaluating resources

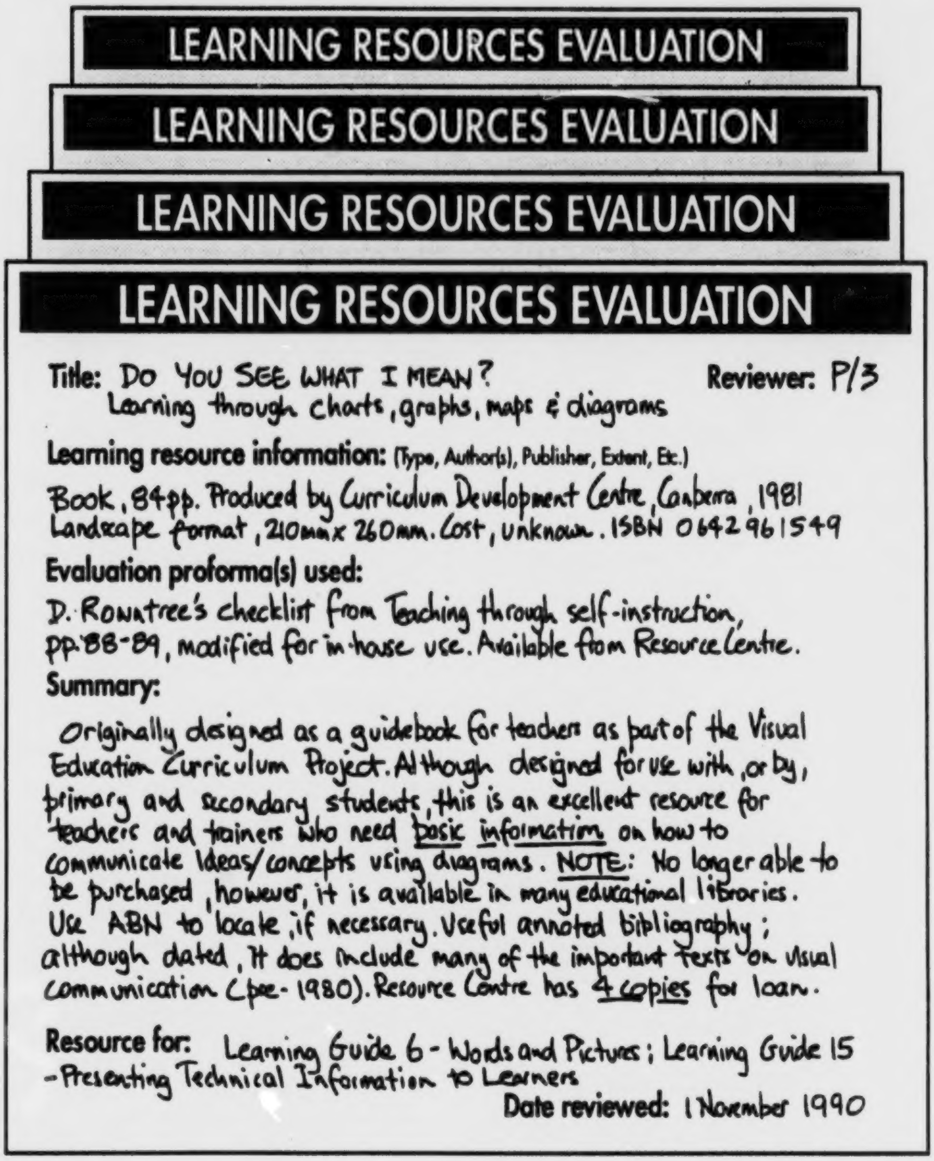
(Modifed from Rowntree 1986)

Coverage	Is the subject matter appropriate for the learners?
	Is it broad enough? Deep enough?
	Any serious omissions? Can the information be supplied from other resources?
	What proportion is irrelevant to our needs?
Teaching approach	Does it teach - or merely act as a reference, or as a reminder of what has been learned before?
	Is it geared to a learner working without any help?
	Does it require learners to read/watch and remember? Or must they interact with the material through exercises and activities?
	Are they given adequate feedback? Summaries? Glossary? Tests?
Style	Is the style of the material suitable for the learner, e.g. vocabulary, sentence length and structure, use of graphs and other pictorial information?
	Is it interesting?
Physical format	Is it attractive in appearance?
	Durable enough to survive repeated use? Portable?
	Does it require special equipment for use e.g. computer, videodisk player?
Treatment	Is the material designed for the specialist or for general use?

	Is it up-to-date? If not, are there parts of the material which can still be used? What percentage of the total material is useable? Is it factually correct, free from distortions or over-simplifications? What is the technical quality of the materials? High standard/professional? Amateurish?
Audience	For whom were the materials originally designed? Can it be used with groups other than its intended audience? Can it be used with your group of learners?
Starting point	What prior knowledge, attitudes and skills are required of the learners to use the materials?
Costs	How much does it cost to hire or buy? Are there additional costs attached to using it, e.g. need for video playback unit? Does the audience size justify the cost of hiring or buying the materials?
Availability	Can the distributor/producer guarantee delivery **before** the critical date(s) when it will be required by the learners? Will the distributor/producer allow you to preview the materials prior to hire or purchase? *(**Note:** The titles and abstracts of learning materials can sometimes be misleading)*
Alternatives	How does the material compare with other existing materials covering the same, or similar, content? Will the materials complement or compete with other resources?

Equally important is the need to record, either in a paper-based or computerised system, the results of the evaluation. This allows other learning guide writers access to information which will help them decide whether to include or omit particular learning resources from their intended program. This also allows you the opportunity to refer back to the results of the evaluation if you need to include additional resource materials in the learning guide design at some later stage.

The following example shows a simple card system used to record evaluation results.



LEARNING RESOURCES EVALUATION

LEARNING RESOURCES EVALUATION

LEARNING RESOURCES EVALUATION

LEARNING RESOURCES EVALUATION

Title: DO YOU SEE WHAT I MEAN?
Learning through charts, graphs, maps & diagrams
Reviewer: P/3

Learning resource information: (Type, Author(s), Publisher, Extent, Etc.)
Book, 84pp. Produced by Curriculum Development Centre, Canberra, 1981
Landscape format, 210mm x 260mm. Cost, unknown. ISBN 0642961549

Evaluation proforma(s) used:
D. Rowntree's checklist from Teaching through self-instruction, pp. 88-89, modified for in-house use. Available from Resource Centre.

Summary:
Originally designed as a guidebook for teachers as part of the Visual Education Curriculum Project. Although designed for use with, or by, primary and secondary students, this is an excellent resource for teachers and trainers who need basic information on how to communicate ideas/concepts using diagrams. NOTE: No longer able to be purchased, however, it is available in many educational libraries. Use ABN to locate, if necessary. Useful annoted bibliography; although dated, it does include many of the important texts on visual communication (pre-1980). Resource Centre has 4 copies for loan.

Resource for: Learning Guide 6 - Words and Pictures; Learning Guide 15 - Presenting Technical Information to Learners

Date reviewed: 1 November 1990

The learning guide design team

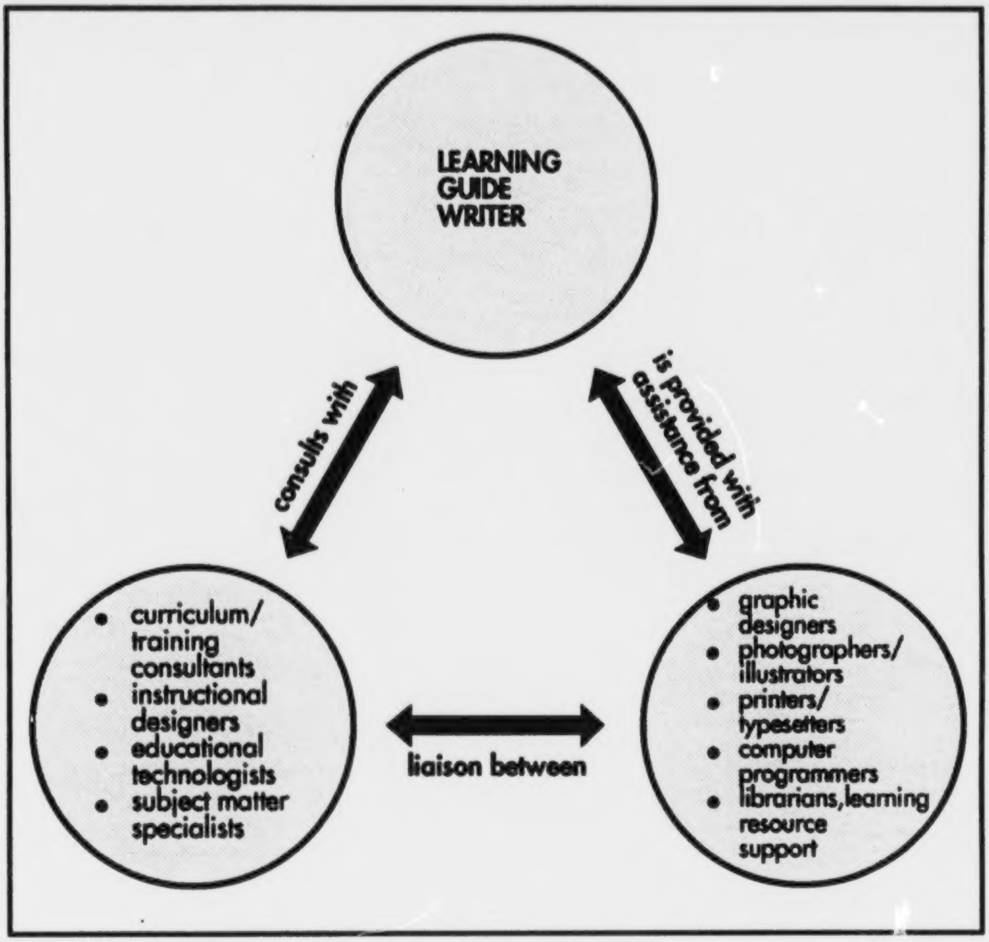
The writing and production of a learning guide can readily be accomplished by one person. If the guide is very basic and does not require complex layout or typography then most teachers/trainers could develop their own learning guides.

It is recommended, however, that a small team be established to write and produce the guide, especially if it is one of a number being developed and if questions related to instructional design, presentation and/or specialist content need to be addressed. It may also be useful to adopt a team approach initially, with individuals taking on the development of subsequent guides based on the format developed by the team.

When circumstances make it necessary for you to write the guide by yourself, it is vital that you get a colleague to act as 'critical friend' in reading and commenting on your work.

Whenever possible, use a team approach. It is important that each member of the team has his or her task(s) in the development of the guide clearly specified. One of the team members should be given a co-ordinating function to ensure that timelines are met and/or to resolve design and production difficulties that may arise. Using the combined knowledge and skills of a number of professionals will greatly enhance the final product.

A suggested team approach is shown in the following diagram.


LEARNING GUIDE WRITER
consults with
is provided with assistance from
liaison between
• curriculum/ training consultants
• instructional designers
• educational technologists
• subject matter specialists
• graphic designers
• photographers/ illustrators
• printers/ typesetters
• computer programmers
• librarians, learning resource support

The parts of the learning guide

The parts which constitute the learning guide have certain elements which are essential and others which are optional. The learning guide has a 'mix and match' component which allows the designer of the learning guide the opportunity to 'customise' the guide depending on the needs of the learners or the complexity of the learning tasks.

The following format is suggested for a learning guide. The sequence of the sections is based on the examination of numerous guides, but you are still at liberty to change the sequence, or include or exclude sections, depending on your needs. However, the suggested format should be suitable for most instructional situations. It is easy for learners to use and highly adaptable.

By following an appropriate format you will have more time to concentrate on the **content** of the guide. Keep in mind that the learning guide format allows you a framework to develop interesting instructional situations. To keep learner motivation high, the presentation style of the guide should vary, but the format must be retained.

In the discussion that follows each section of the learning guide will be described in greater detail and guidelines for developing each section proposed.

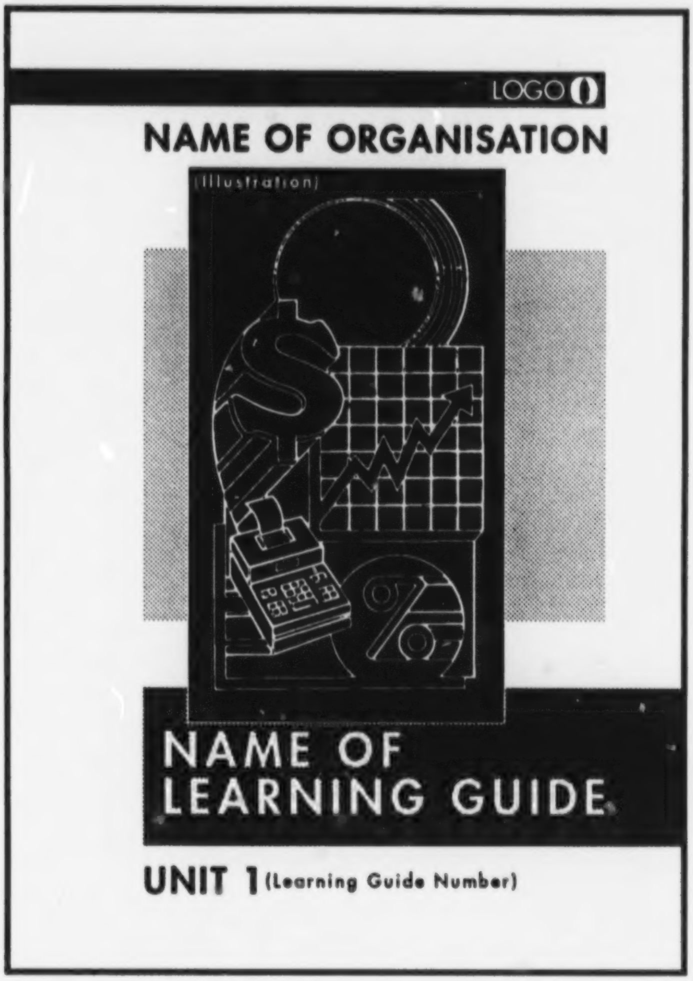
We will move sequentially through the guide, covering each of the following sections:

The parts of the learning guide

- Cover
- Title page
- Contents
- Introduction (& how to use the learning guide)
- Learning outcomes
- Pre-requisite knowledge/skills
- Intended audience (target group)
- Learning activity and resources
- Self-assessment questions (self-check) and answers
- Review (or summary)
- Competency assessment
- Glossary
- References/Further reading

The cover

The cover is more than just decoration. It supplies important information to the learner. Its major function is that of identification - who produced it, the topic or study area it covers and whether or not it is part of a series. Colour can be used to distinguish individual guides or guides in a particular series. (The cost associated with printing in colour is the limiting factor.) The example opposite illustrates the type of information that can be included.



LOGO

NAME OF ORGANISATION

(Illustration)

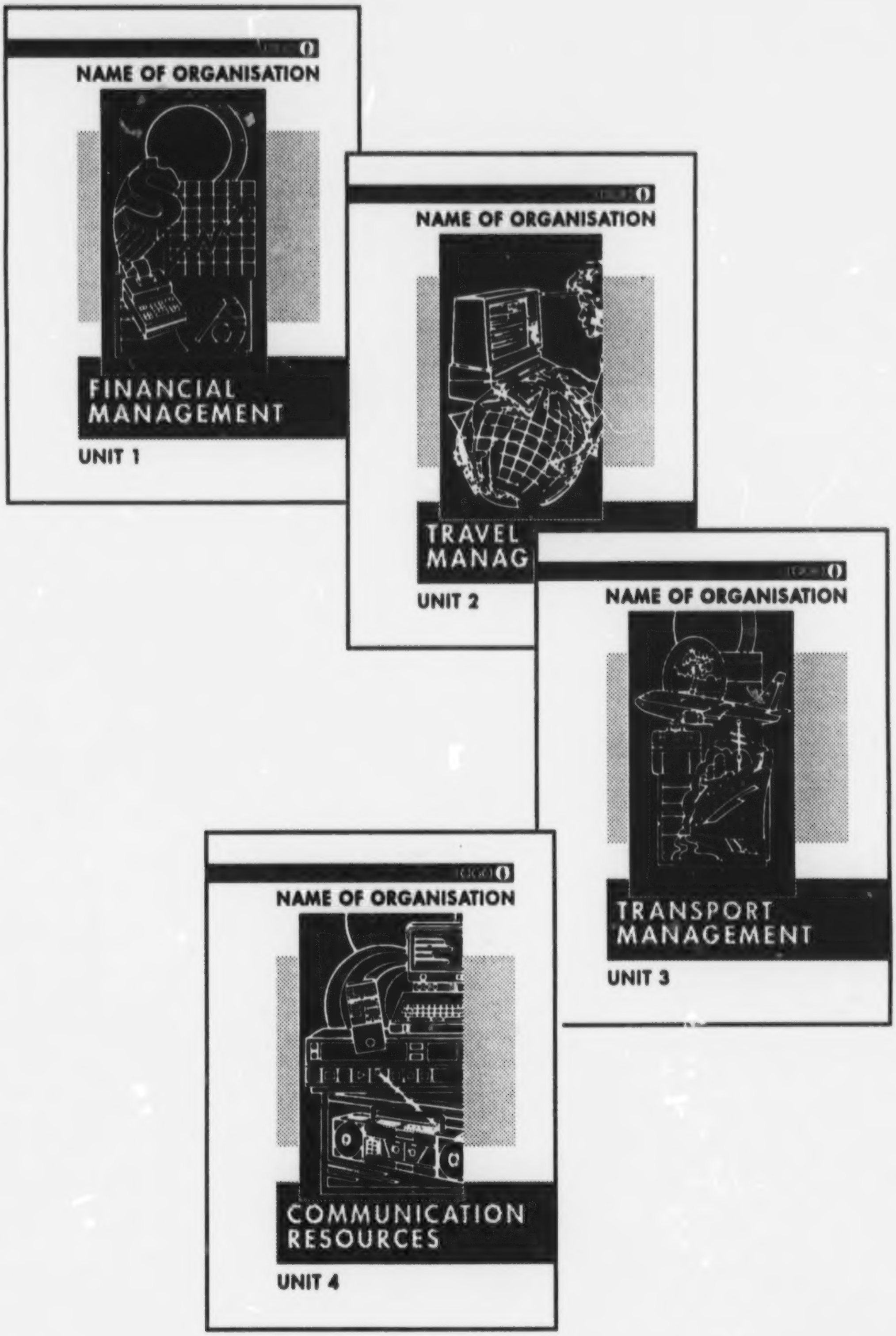
NAME OF LEARNING GUIDE

UNIT 1 (Learning Guide Number)

Covers can be of varying degrees of complexity, especially if they incorporate illustrations or graphic design elements. Illustrations should be used only if they contribute to easy identification of the subject matter to be covered in the guide. Well designed covers arouse interest in the guide's content and motivate learners to take that vital first step in learning - opening the front cover to begin reading.

Standard formats can be designed by graphic designers and/or instructional designers which will enable learning guide writers to produce versatile and interesting covers without the need for a new design each time.

The examples presented below illustrate the versatility of a standard format cover design.


NAME OF ORGANISATION
FINANCIAL MANAGEMENT
UNIT 1
NAME OF ORGANISATION
TRAVEL MANAG
UNIT 2
NAME OF ORGANISATION
TRANSPORT MANAGEMENT
UNIT 3
NAME OF ORGANISATION
COMMUNICATION RESOURCES
UNIT 4

The title page

The purpose of the title page is to display the complete title to the guide (especially if the title has had to be modified to fit the cover) along with any subtitles. The author(s) of the guide and the department or authority to whom they are attached should be included. If the publisher of the learning guide is not the organisation identified on the front cover, then all appropriate details such as full name, address etc. should be included on this page.

It is usual in any written work, and that includes learning guides, to have a copyright statement appear on the inside of the front cover and is usually written as:

> © *[name of organisation/publisher]*, 19..[*year of publication*]
> No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information or retrieval system, without the prior permission of [organisation or publisher]. Requests for permission to use material contained in this publication should be directed to [*authorised individual in organisation*]

An alternative statement, and one well worth considering, especially if the guides are for use within educational settings, is the following:

> Copying of this document for educational or research purposes is permitted provided the author(s) and source(s) are acknowledged.

In addition any major contributors to the guide such as subject matter specialists, illustrators, photographers, editors etc. should be acknowledged on this page.

An important, but often overlooked notation on this page is the acknowledgement of text or other illustrative materials from other works that you have included in your learning guide. Apart from the legal requirements, it is a courtesy to fellow writers to acknowledge that you have used their materials in your guide. Depending on what you want to reproduce, you may need written permission from the author and/or publisher to reproduce the materials. If in doubt, check with your organisation's legal officer.

Should your learning guide(s) be commercially viable there are certain requirements relating to International Standard Book Numbers (ISBNs), cataloguing details and depositing copies with State and national libraries. Contact a librarian or publications officer about these requirements.

The contents page

The contents page is the organisational map to the main sections of the guide. Even if your guide is only 10 pages long it is still useful to include a contents page because it provides the learner with a summary of the major components of the guide. A layout that allows the learner to find the information at a glance is shown on the following page. Page numbers on the right-hand side help learners locate the appropriate section quickly and easily.

CONTENTS

Page Number

Performing an eyelash and eyebrow tint (topic title) 3
- Purpose 3
- Objectives 6
- Check point 7

Tasks - outlining hygiene and sanitation standards 9
- Activity 1.1, 1.2 - Hygiene, sanitation and safety standards 9
- Activity 2 - Cleaning equipment 10
- Self check 11
- Activity 3 - Personal hygiene procedures and client safety 12
- Self check 13
- Activity 4 - Contra indications of eyelash and eyebrow tinting 14
- Self check 15

Task - listing the advantages of eyelash and eyebrow tinting 17
- Activity 1.1, 1.2, 1.3 - Advantages 17
- Self check 19

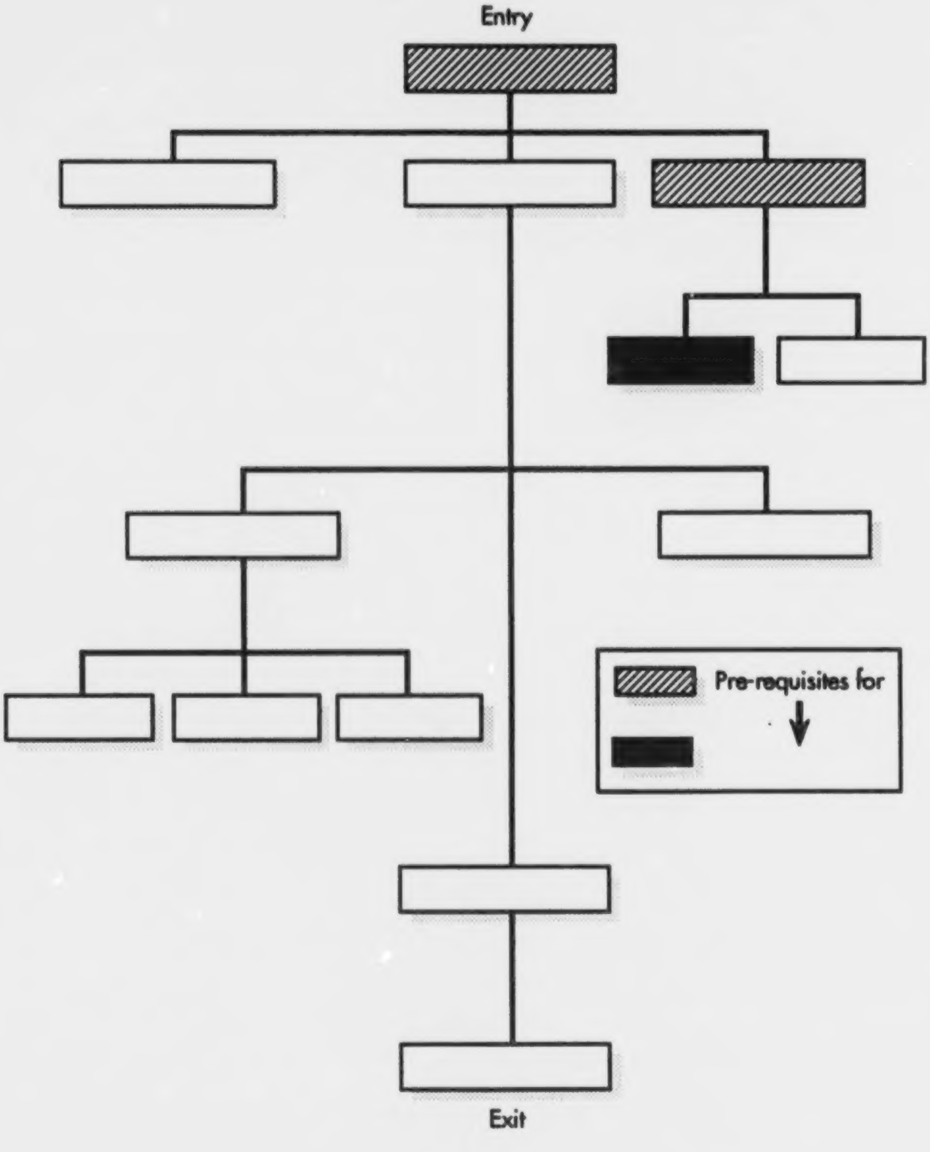
Task - identifying the materials required 21
- Activity 1 - Colour selection 21
- Activity 2 - Setting up 23
- Activity 3 - Eye shields 25
- Self check 26
- Activity 4 - Preparation of the bed/couch 27

Task - selecting and applying tint on a 'client' 29
- Activity 1 - Practice on a 'client' 29
- Step 1 - Prepare the 'client' and work area 30
- Step 2 - Cleanse the eye area 31
- Step 3 - Mix the product 33
- Step 4 - Apply the product 35

Assessment (topic assessment) 37
- Procedures 37
- Objectives 37
- Performance criteria 38
- Theory questions 39

(From: How to write Tea Tree Gully learning materials, Tea Tree Gully College of TAFE, SA 1990.)

An option at this stage is to include a map which shows the learner the relationship between this and other learning guides. This is important if a number of learning guides together constitute a course or accredited programme for which an award or certification is an outcome.



(From: How to write Tea Tree Gully learning materials, Tea Tree Gully College of TAFE, SA 1990.)

The introduction

This section appears in other learning guides under the headings of:

- 'The overview'
- 'Course(or programme) outline'
- 'About the course'
- 'What you should know first'
- 'Setting the scene'
- 'Information for learners'.

Whatever its name, this section's purpose is to give the learner an overview of the aims of the learning guide, general introductory information about the subject matter, how the guide is to be used and any information you believe learners need before they begin to tackle the learning activities. The introduction should tell what the learners are going to learn, in general terms, and why it is important to learn it.

The tone of the introduction should help reassure the learner that the overall programme outcomes can be achieved and that the learning activities to follow are both interesting and rewarding.

An important element within the introduction is the aim. Each learning guide will have one or more aims. These are brief statements of intent or direction. They are usually quite broad and are not stated in the more precise language of learning outcomes. (We will deal with writing learning outcomes in the next section.)

Examples of aims are:

- To provide you with the necessary skills to install and maintain a.......
- To encourage you to adopt safe work practices at all times.
- To make you aware of your responsibilities, and your employer's with respect to Occupational Health and Safety Legislation.
- To provide you with the knowledge and skills necessary to operate a range of workshop equipment.

Using the word 'you' throughout the learning guide is preferable to using 'the learner' as it is a more personalised approach.

Some learning guide writers use this section to provide information to learners about issues specific to the learning task at hand such as:

- information about accessing the CML system, e.g. log-on/log-off procedures
- assessment procedures
- procedures for accessing and borrowing resources from the organisation
- lists of contact people within the organisation who can act as mentors to help the learner successfully complete the learning task
- brief study hints on how to take notes from a textbook - but keep them concise.

In the general overview you may wish to include information like:

- Where the guide fits into the overall programme: *'In Learning Guide 3 we examined..... Later we will deal with... This guide covers...'*
- An estimate of the time required to complete the Learning Guide: *'To meet the learning outcomes of this guide you will need about 5 hours to complete the learning activities'*
- People in the organisation authorised to administer competency testing after the learning guide is completed: *'When you have completed all the activities and self-check questions, contact your department head who will organise a time and place for you to do your on-the-job assessment'.*

In writing the introduction the following guidelines may be useful:

- include a statement of the skill(s) the learning guide is designed to help the learner achieve
- explain why the knowledge/skill is important to the learner

- write to the learner directly, using the second person. This will make it more personal and tend to arouse the student's interest
- keep the tone of the introduction friendly and light.

Note: Some writers incorporate the learning outcomes statements in the introduction:*'I hope that after you have completed this learning guide you will have gained sufficient knowledge to be able to.... '* Although this informal approach can be used it is better to have a separate section for the learning outcomes statements so that they are not 'lost' among the other information of the introduction. Learners will take more notice of the objectives if they are given prominence under their own heading.

Learning outcomes

Learning outcomes are a way of linking industry-required competencies with the learning process. They are very similar to the 'performance', 'behavioural' and 'instructional' objectives statements which exist in many TAFE and training curricula. The problem has been that the writing of 'objectives' has, in many cases, been taken to the extreme, with hundreds and hundreds of objectives being written, thereby trivialising and devaluing the associated teaching/training process.

The term 'learning outcome' is preferred because it clearly emphasises the performance and knowledge gained **by the learner**, rather than the teaching/training activities associated with it. It places the learner at the centre of the learning process and provides clear, unambiguous statements as to what he or she will to be able to do after successfully completing the learning programme.

In the previous section, the learner was given an overview in the form of aims of the intended direction of the learning programme. These general aims now need to be written as specific learning outcomes. This requires rewriting the aims statements as specific 'actions' which can be measured (assessed).

The learning outcomes can be derived from relevant data such as:

- the scenarios you prepared which identified certain educational or training needs (see earlier section)
- training needs analyses, training specifications, skills audits and other needs assessment documents
- job profiles and duty statements of employees
- your [or your colleague(s) or specialist] detailed understanding of the job for which training is required; the knowledge, skills and attitudes
- educational or training syllabii.

Of major importance to you as a learning guide writer will be your understanding of the new national competency standards policy being advocated by the National Training Board in Canberra. Various competency standards bodies throughout Australia will be responsible for preparing standards for industry. These national standards specify the competence required for effective performance in employment.

The National Training Board (NTB) has produced a discussion paper on setting national skill standards and, more recently, a policy and guidelines document*. In summary, a standard is expressed in units of competency each of which comprise two parts: elements of competency and performance criteria. The following example from the NTB's National competency standards document shows how the unit of competency of driving a crane is broken down into its elements and performance criteria for the occupation of a crane driver.

---

* National Training Board. (1990). *Setting national skills standards.* A discussion paper. Canberra .

National Training Board. (1991). *National competency standards.* Policy and guidelines. Canberra.

OCCUPATION: CRANE DRIVER

Unit: Drive crane

Element	Performance criteria
Obtain permits	• Permits obtained if required to allow transportation of crane to site
Drive crane to nominated site	• Hazards, including overhead obstructions, poles adjacent to roadways and corners recognised and negotiated safely. • Crane driven according to relevent traffic regulations • Starting procedures, gear changing and braking carried out to ensure smooth and safe transportation of crane.

In addition a range of variables or boundary statement, which describes the range of contexts and conditions to which the performance criteria apply, may be included. These will provide the programme developer/learning guide writer with some guidance on the boundaries of the application of the performance criteria. This statement may apply to a particular range of technology or equipment, to particular types of sites or to occupational overlap between industries (National Training Board 1991, p.18-24).

Your task is to take all this information and write learning outcomes that:

1. reflect the competency-based nature of on-the-job activities
2. take into account the ongoing development of competency standards by the relevant industry (ies)
3. phrase them in a way that they complement those national competency standards
4. are written for the learner, not the needs of the teacher or trainer.

Remember that the learning outcomes statements are the learning counterpart of the occupational competency statement. Learning outcomes focus on what the learner is expected to achieve **in the learning programme**, while the competency statement describes the expectation of performance **in the workplace**. It is important that these two types of statements are comparable and comprehensive enough to ensure that the processes for assessing competency are properly designed.

In any competency-based training programme, the learning outcomes must be clearly specified in terms of:

- **performance** - what the learner is expected to do [comprising a verb (observable and measurable) and a noun (object of the action)]
- **standards** to be achieved - the level of performance the learner must reach to be considered proficient in the competency
- **conditions** under which the performance is to be achieved.

Performance

Use action verbs like describe, demonstrate, explain, calculate, state, write, apply *but avoid verbs* like know, understand, be aware of, etc.

The verb will depend on whether the performance relates to:

- *knowledge* - intellectual knowledge (cognition) e.g. identify, explain, solve, evaluate, etc.

- *skills* - manipulative skills (psychomotor) e.g. adjust, operate, demonstrate, etc.
- *attitudes* - feelings, values (affective) e.g. perceive, support, influence, resolve, etc.

Examples of performance statements are:

- **evaluate** the action taken (in a specific problem situation)
- **calculate** the maximum safe working load
- **list** the seven rules of safe operation.

The selection of the appropriate verb is a crucial matter as it must reflect the **level** of the knowledge or skill required. For example, identify suggests a less complex skill than explain; explaining is simpler than evaluating.

Conditions

The learning outcome should also specify the conditions that will operate while the learners are performing. These may include reference materials allowed, equipment or tools which must be used, and whether the assessment or learning task is to be supervised or unsupervised.

Examples of conditions statements are:

- given all necessary tools and the operator's manual..
- without access to textbooks...
- in a simulated situation...
- under the supervision of a certified examiner...
- in no more than 30 minutes.

Standards

The learning outcome must state the standards against which the performance will be judged to be acceptable. As mentioned before, national competency standards are prepared by industry, and they must be reflected in the learning outcomes. Where the learning outcomes you are writing are not based upon competency standards agreed to by industry, you will need to **develop your own set of standards**. These can be based on time limits, quality of product, accuracy or degree of skill required, etc. These standards must be verifiable, that is, they must be able to be checked.

Examples of standards statements are:

- ...with a wastage rate of no more than 1%.
- ...with no more than two errors and in the stated sequence.

An example of a learning outcome with all three elements is:

"On the successful completion of the learning programme, you will be able to:

Performance:	repair and rebind damaged books
Conditions:	given suitable sample books in need of repair; materials for repair; the necessary workspace and equipment, all instruction sheets and under supervision of the instructor
Standards:	based on Australian National Library Standard ANL 123 — Restoration of damaged books

While the translation between learning outcomes and the statements of competency standards proposed by the NTB is not exact, performance in the above learning outcome equates most nearly to an element of competence; conditions loosely equate to the range of variables or boundary statements and standards with performance criteria.

Writing learning outcomes in this format forces you to think critically about the statements that you are going to include in the guide. The more precisely you are able to write them the less chance there is that the learners will misinterpret what is expected of them.

A learning guide, covering a specified unit of competence, should only require about three learning outcome statements. If the competency is reasonably complex then up to six learning outcomes may need to be written. Any more than six and you may need to reassess the learning outcomes by reducing the number or, if you think they are all necessary, consider producing a second learning guide to cover all the learning outcomes.

To link pertinent knowledge with the major learning outcomes stipulated in the guide it is sometimes useful, especially if there is a large knowledge-based component, to produce a short list of additional statements which help the learner achieve these major learning outcomes.

For example:

Achievement of learning outcome 1 requires you being able to:

- identify the....
- explain why....
- describe the function of....
- calculate the cost of....

An option available to you is to cross-reference these statements with the self-assessment questions and the learning activities.

Remember:

Don't write too many of these additional statements, keep them to between 4-6. Only the most essential should be included.

Some hints for preparing learning outcomes statements

- Cross-reference learning outcomes and additional statements to text, activities, self-check questions. Inclusions such as: *'This activity gives you the opportunity to meet the requirements of learning outcome 6'* can aid the learning process.
- Don't produce long lists of learning outcomes. Be selective. Learners will be put off if they see a page crammed with objectives. For learning guides six major learning outcomes should be a maximum.
- Keep learning outcomes free of any unnecessary technical terms or 'jargon'. Don't use complex terms unless the learners already know them.

- Alert learners to learning outcomes that may be more important, or require more effort to achieve than others. In a list all statements are perceived to have the same importance. Rank them or create 'star charts' - three stars for difficult or crucial to one star for relatively easy to achieve.

Before we leave this section on learning outcomes it should be recognised that well written learning outcomes help both the learner and/or their teacher or trainer to select the learning guides needed to achieve competency.

If after reading the learning outline in the guide learners believe they can demonstrate the competencies because of their previous study or work experiences, then they may ask the teacher or trainer to exempt them from that learning programme. In this instance the learner's prior experiences can be recognised by the teacher, trainer or industry assessor by the learner demonstrating the competency or by undertaking some form of challenge test. This way the learner is not disadvantaged by having to complete a learning programme for which he or she can already demonstrate competency.

Pre-requisite knowledge & skills

A learner brings to each learning situation a range of knowledge and experiences that can be used to acquire new knowledge and skills. The learning guide writer must ensure that **before** the learner starts any of the learning activities, he or she possesses the pre-requisite knowledge and skills that will enable him or her to grasp new concepts, principles, procedures or processes.

Therefore, you will need to determine what knowledge, skills or attitudes the learner should have prior to beginning the learning guide. This section is important, because without learners being given this information it is possible that they may reach a certain point in the learning guide and not be able to go any further due to gaps in their knowledge. This can lead to considerable frustration, or even anger, on the part of learners because they feel that they are inadequate ('there is something wrong with me') since they fail to understand the information presented to them. All this anxiety can be eliminated if care is taken in clearly identifying the essential prior knowledge and skills learners need before beginning the learning programme.

How specific you are at detailing the pre-requisite knowledge and skills will be determined by the learning outcomes to be met, the complexity of the content and the educational/work backgrounds of the learners.

Pre-requisites can be stated very simply such as:

> *Familiarity with techniques used in PC applications programs and familiarity with Lotus 1-2-3 or similar spreadsheet program.*

This may be quite adequate for the intended audience as long as the learners have the same interpretation of the word 'familiarity' as the writer.

If, however, the understanding of fundamental concepts, principles or methods is mandatory before the learner can begin the learning programme, then much more explicit statements will need to be written, especially where mathematical skills are concerned.

For example:

> Before starting this learning guide it is important that you understand the following mathematical concepts related to measurement :
>
> - Estimating errors in measurement
> - Combination of errors e.g. tolerance
> - Right-angled triangles
> - Calculations involving decimal degrees or degrees and minutes
> - Trigometric ratios
> - Sine, cosine and tangent functions and their graphs
> - Simple identities - e.g. $\sin^2 A + \cos^2 A = 1$
>
> If you are unfamiliar with any of the above concepts work through *Learning Guide 10 - Measurement* before starting this learning guide.

Lack of attention to pre-requisite learning either by not thinking about it at all (and therefore assuming that learners will know whatever is necessary), or hoping they will struggle through it, is a recipe for disaster. Do your homework and make it clear to the learner what the pre-requisites are for every learning guide you write.

Intended audiences

It is vital to the success of your learning guide that you have clearly identified the people (target group) who will be using the learning guide. It doesn't take a large amount of effort to produce a profile of your potential audience.

This section is designed to identify those people for whom the guide was specifically written. Although it does not preclude other groups from using the guide the writer has to make it clear who the intended audience is. It need only be fairly short as the example below demonstrates.

Intended audiences

- Managers of projects who wish to operate project control software directly.
- People who will assist project managers in scheduling and controlling projects.
- Licencees/franchisees consulting to client organisations.

Resources

The purpose of this section of the learning guide is to list anything (e.g.equipment and materials) to which the learner must have access in order to undertake all the activities stipulated in the learning guide. In addition to listing the resources required by the learner it should indicate where the equipment and materials are located within the organisation, and any special conditions relating to their use. For example, technical/training manuals or reference material may only be lent to staff for up to 5 working days or they may not be allowed to leave the building; equipment may only be available for use at certain times. The use of the organisation's personal computers at home on weekends may be limited due to high demand by staff.

An example of how this information may be presented to the learner is presented in the illustration below.

Resources

The list of resources, their locations and any special conditions applying is as follows:

This learning guide	(Yours to keep - issued by Learning Centre)
Video AA100 - Gas chromatography	Learning Centre (2 day loan)
Video AA 105 - Determining environmental pollutents	Learning Centre (5 day loan)
Workbook to accompany Video AA 105	Learning Centre (5 day loan)
Videoplayer/monitor	Learning Centre
Gas chromatograph and samples for analysis	Environmental Science lab., Building 23, Room 3.14. Contact Laboratory Manager to book. Ext. 2516

Learning activities and learning resources

This section constitutes the main instructional component of the learning guide. This is the section which is responsible for guiding the learner through a series of planned learning activities and introducing him or her to the appropriate resources to achieve the stated outcomes of the learning programme. Remember that learning guides are **activity-based**, that is, people learn by doing something - reading, talking to people, filling in checklists, operating equipment, etc. It is your responsibility to design learning activities that take advantage of the various resources available to your organisation. In designing activities take into account that learners have **a maximum, on-task concentration span of about 20 minutes**. Therefore, don't design an activity, such as reading from textbooks, which will take them an hour or more to complete. Change the activity, even to the point of offering them the opportunity to take a 5-10 minute break at selected points.

In this section of the learning guide **you are not writing a textbook**, you are providing the road map by which the learner interacts with the learning activities and resources. Together they will provide the information and the stimulus necessary for the learner to achieve the stated learning outcomes.

The learning activities

The learning activities you select for your learning guides are of critical importance. Depending on the quality and appropriateness of that series of learning activities the learners will either achieve the competency or they won't.

A learning activity can take many forms: readings, projects, practice exercises, viewing media, in fact doing as many things as a creative learning guide writer can devise. The learning activity does no teaching itself, it simply directs the learner, telling him/her what to do, how to do it and in what sequence. Even though brief and to the point, each learning activity gives the learner all necessary directions for completing the work.

The learning activities must be carefully designed and sequenced. They must provide the learners with the appropriate information and practice they need, and a complete coverage of all essential subject matter. The level of difficulty and mode of expression should be within the learner's abilities and varied enough to maintain interest and motivation. In any series of learning activities for a particular learning outcome, the activities should be of sufficient variety and suitable for a range of learner capabilities and learning styles. This is not as daunting as it sounds, and with experience you will find this aspect of learning guide writing very rewarding.

Sequencing the learning activities is not a difficult task. Start by selecting a learning outcome and give basic or background information, followed (if needed) by more detailed information and examples as determined by your resources. Proceed by giving the learner a chance to practise what he or she has learned, then complete the activities with some form of **self-check** so that the learner knows what they have achieved up to that point. If a learner has difficulty with any of the material, self-checks can help identify the problem areas and the learner can be directed to other learning guides or resources with the help of the teacher or trainer if appropriate. The sequence can be repeated, or modified, for the next series of learning activities until all the learning outcomes have been covered.

Some learners may elect to skip a learning activity altogether because of their previous experience. This is permissible as long as they can demonstrate proficiency in that particular learning outcome at some point.

Types of learning activities

The following list briefly describes a number of learning activities that are suitable for use in learning guides. The suggestions are presented to encourage you to think about creative learning activities that could be included in your guides. It should not be considered as an exhaustive list of possibilities:

- *Reading from textbooks, journals* those sections dealing specifically with the knowledge required to achieve a learning outcome. Be selective, get them to read only that which is needed to meet the stated learning outcome. Give them directions on what to look for in the material.

- *Viewing or listening to audiovisual materials.* The materials selected must be readily available to the learners and the equipment easily set up and used. Again, be selective, use only the most relevant parts of the audiovisual materials.
- *Keeping a journal.* This can be a very effective activity spread over a series of learning guides, particularly where attitudal changes or interpersonal skills are concerned.
- *Observing or operating models or mock-ups* to gain an understanding of mechanisms or operating controls and processes, particularly if real processes are costly and/or time-consuming — e.g. flight, navigational simulations.)
- *Role-playing of a performance* in a simulated situation under the guidance of a trainer/teacher.
- *Real-life performances* where the learner functions for short periods of time under controlled conditions in an actual work situation.
- *Observing* a skilled worker in a real work situation. This should be done with specific goals in mind, usually with some form of guide, observation instrument, or report form to give structure and point to the observation period.
- *Simulated experiences* in which the learner goes through a close approximation of a real-life performance with the conditions controlled and consequences minimised. Case studies in which learners write their own reactions and responses to the given situation are also considered simulation experiences.
- *Small group activities* when learners at closely related points of achievement can get together to discuss, plan or evaluate their work.
- *Production or construction of projects or services.* These must directly contribute to the learning outcome and therefore must be carefully designed and assigned, be of limited scope and require a limited amount of time; e.g. prepare working drawings, install hot water unit, etc.

- *Problem-solving activities*. Some learning outcomes may require solving a problem for a given situation. Problem-solving activities should be based on 'real-world' problems, not just 'exercises'. It is very important in problem-solving activities that the learner is known to possess the requisite skill and that he or she has access to the information necessary to solve the problem.

- *Skills practice exercises*. Some skills may require that the learner perform a skill repeatedly to a specified standard. Learning activities may therefore specify practice periods in terms of time, number of repeated experiences or quantity of production.

- *Performing experiments* in a laboratory or workshop. Assign the learner specific experiments to perform with specified equipment and processes, observe the results and report or use the results in some way.

- *Writing technical/scientific/general reports, preparing manuals etc.* This activity is particularly valuable in technical/trade areas, but is also useful in any competency-based programme in which written communication skills are important. It can also be used to reinforce process skills and knowledge.

- *Preparing visual materials*. Gather information and produce graphic materials such as illustrations, graphs, charts, diagrams, sketches, layouts, etc. Activities of this type are usually popular with learners, they are interesting and add variety to the list of activities and tend to reinforce learning.

- *Critique or evaluation activities*. In these the learner is asked to rate or evaluate an example of a product or service or a process. The final result may be a rating sheet, written report or oral presentation.

- *Co-operative learner activities*. Even when instruction is for most part individualised, there are situations in which two or more learners may profitably work together. Many workplace tasks involve teamwork and it is proper for learning activities to incorporate this. Activities that involve heavy lifting, co-operative production techniques, or group decision-making can be covered by this type of activity.

- *Learner-designed activities*. You don't have to do all their thinking for them. Learners are often capable of coming up with appropriate learning activities themselves. Their motivation to complete them will probably be high too.

Hints for writing learning activities

- Tell the learners exactly what they need to do for each learning activity. Make it simple and clear.
- For the most part, begin each activity statement with an action word. Ask the learner to read, view, calculate, etc.
- If you direct the learner to a textbook, give just enough information so that the learner can identify and find it. There is no need to include complete bibliographic citations. This detailed information can be presented in the Reference section of the guide.
- If you direct a learner to some audiovisual materials, tell the learner what it is (video, computer programme), the full title, where it is located and (if appropriate) which part to look at.
- If you want the learner to contact a resource person for special materials or instruction, give full details as to who the person is, and where and how they can be contacted.
- As learners become more experienced with using learning guides you might decide to be less prescriptive about the learning resources they use to obtain their information. An important part of the learning outcomes may be that learners develop the research skills to locate the relevant information.

The learning resources

Apart from directing the learner to a resource as part of the learning activity, it is important that additional comments are produced by the learning guide writer to provide further helpful information about particular learning resources.

These additional comments can be seen as special instructions or supporting information so that the learner gets the most out of the resource. Examples of the type of additional comments which are of value to the learner are:

- Tell the learner if there is anything unusual about the assigned reading or instructional media; e.g. the videotape is on an American standard and the only videoplayer it can be used on is housed in Human Resources Unit.
- Include any key points you don't want the learners to overlook as they use the resources.
- Provide questions the learner must answer as he or she interacts with the learning resources.
- Provide the learner with information about problems which are likely to occur with any of the resources and what they can do about them.
- Suggest possible alternatives or ways of finding alternatives if the assigned resource is not available.

It is important that you only select and use resources which can be readily purchased or accessed. Consulting with a librarian or similar person within your organisation to determine when, where, how (and if!) the resources you wish to use are available is an important step in the development of your learning guide.

Self-assessment questions & answers

One of the basic principles of competency-based training is that learners should be able to determine easily how well they are progressing toward achievement of the stated learning outcome or competency. Self-assessment questions are designed to do just that. The activities in the self-assessment section (alternatively known as a *self-check* or *self-help* section) provide learners with the feedback about whether or not they have understood the information presented to them in any particular section of the guide. Having found through the self-assessment that they have achieved the required knowledge and/or skills, they can proceed onto the next series of learning activities.

Self-assessment questions can be placed at the end of a learning guide. In this instance, the self-assessment section will aim to test the learner's understanding of all the essential material covered during the course of the learning programme. However a better approach may be to place self-assessment questions strategically after certain activities have been completed by the learner. This will help to reinforce the learning of that material. There are no hard and fast rules for the placement of self-assessment questions: placement should be determined by the complexity of the learning activity, how much a self-check element is built into the activity and the need for the learner to check their own understanding of the information before moving onto the next activity.

Self-assessment questions are for **the learner's own use**. They are not to be checked or corrected by a teacher or trainer unless the learner wants this. **It is never used as a basis for awarding marks or grades.** In fact, it is the learners who individually decide whether or not they wish to complete the self-assessment activities. *(However, the learners should be encouraged to do the self-assessment questions because, if they don't, they deprive themselves of valuable personal feedback.)*

Self-assessments are a valuable way for the learner to gauge how they are progressing towards the stated learning outcome. After the learner has had the opportunity to practise the procedure or task, it is often helpful to provide them with feedback through some method of self-testing. A self-assessment of a skill may be best handled by giving learners a simulated real-life situation and providing a simple checklist with which to rate their own performances or finished products. Sometimes it might be appropriate for them to make a videotape of their performance or ask a peer to evaluate their performance, again using a checklist.

Self-assessments associated with assessing knowledge acquisition usually consist of self-test items (multiple-choice, essay questions, short answer tests, etc.) based on the activities the learner has recently completed. It is typical for knowledge-based self-assessment to occur at the end of a series of activities, and prior to a learning activity where the associated skill component can be practised. If the knowledge component is complex and/or difficult the self-assessments can occur more frequently. The self-assessments must relate directly to the information contained in the learning resources and should not be used to assess any material that has not been covered in the preceding series of activities. Self-assessments must always provide feedback to the learner to indicate success in achieving specific learning outcomes.

Guidelines for writing self-assessment questions

- The self-assessment questions should cover all the major points of knowledge and skill necessary for the learner to achieve the stated outcomes.
- Do not include self-assessment items that only require rote responses. This accomplishes very little instructionally and the learners may consider it a waste of their valuable time.
- Produce checklists, flowcharts, rating scales etc. so that learners can assess their own skill development.
- Write self-assessment questions that require the learners to apply their knowledge and by doing so show that they do understand what they have learned.
- Brief essay questions or problem-solving activities make good self-assessment items. Although multiple-choice questions are useful don't use this format in every knowledge test. Include plenty of variety in the self-assessment activities. Provide case studies and examples of materials, scenarios, etc. and ask 'what if' questions. What went wrong? What should/could they do in this situation? etc.
- Try to keep self-assessments to one page, definitely no more than two.

A word about providing answers to self-assessment questions

- Provide the learner with the correct answers on a page headed *'Self-assessment answers'*. These can be located at the back of the learning guide and colour-coded for easy identification.

Alternatively, answer page(s) can follow directly after the question page(s), if the writer considers it appropriate and if it is consistent with the presentation format of the learning guide. If the guide is less than 10 pages in length, a single page at the back is all right. If the guide has many learning activities and self-assessment questions the alternative approach should be considered.

- If it is a multiple-choice format don't just give the right response, indicate why the other responses are incorrect.
- If you are using an essay or problem-solving type item, write a *model answer* (or at least list the main points) so that the learners can compare their response with yours. Your model answer should be no more detailed than the one you would expect the learner to write.
- For items involving calculations, make sure you include every step and highlight formulae or equations that should have been used in the calculation.

Self-assessment activities give learners the opportunity to gain feedback on their progress. If they have not done as well as they thought they should have, they can contact their teacher or trainer for guidance and support.

Reviews (or Summaries)

It is strongly recommended that a review (or summary) section be included in the learning guide. Reviews are extremely useful to learners as a means of highlighting the main points that have been covered while working through the learning guide and its associated resources. It also acts as a check to make sure that learners have not inadvertantly omitted any important information.

Reviews should be kept brief and consistent with the learning objectives stated at the beginning of the guide.

Reviews can be produced by the learning guide writer or can be produced by the learners themselves. Learner-generated summaries are worthwhile learning activities, but sufficient instructions should be given by the writer if learners are preparing their own summaries.

Various mapping techniques, such as Buzan's 'mindmaps' or Novak's 'concept maps'*, can be used to help the learner create visual representations (maps) of the main points as an alternative to writing summary notes. Examples of both writer-produced and learner-generated reviews and summaries are given below.

Learning guide writer generated review

REVIEW

You have now almost completed the first unit of this subject. In this unit I have tried to help you learn:

- what equipment and texts you will need to study the subject;
- the categories of computer and the differences between them;
- the main elements of a computer system;
- what the major computer hardware components are and what the various types of each are; and
- the meanings of the commonly used terms relating to computers.

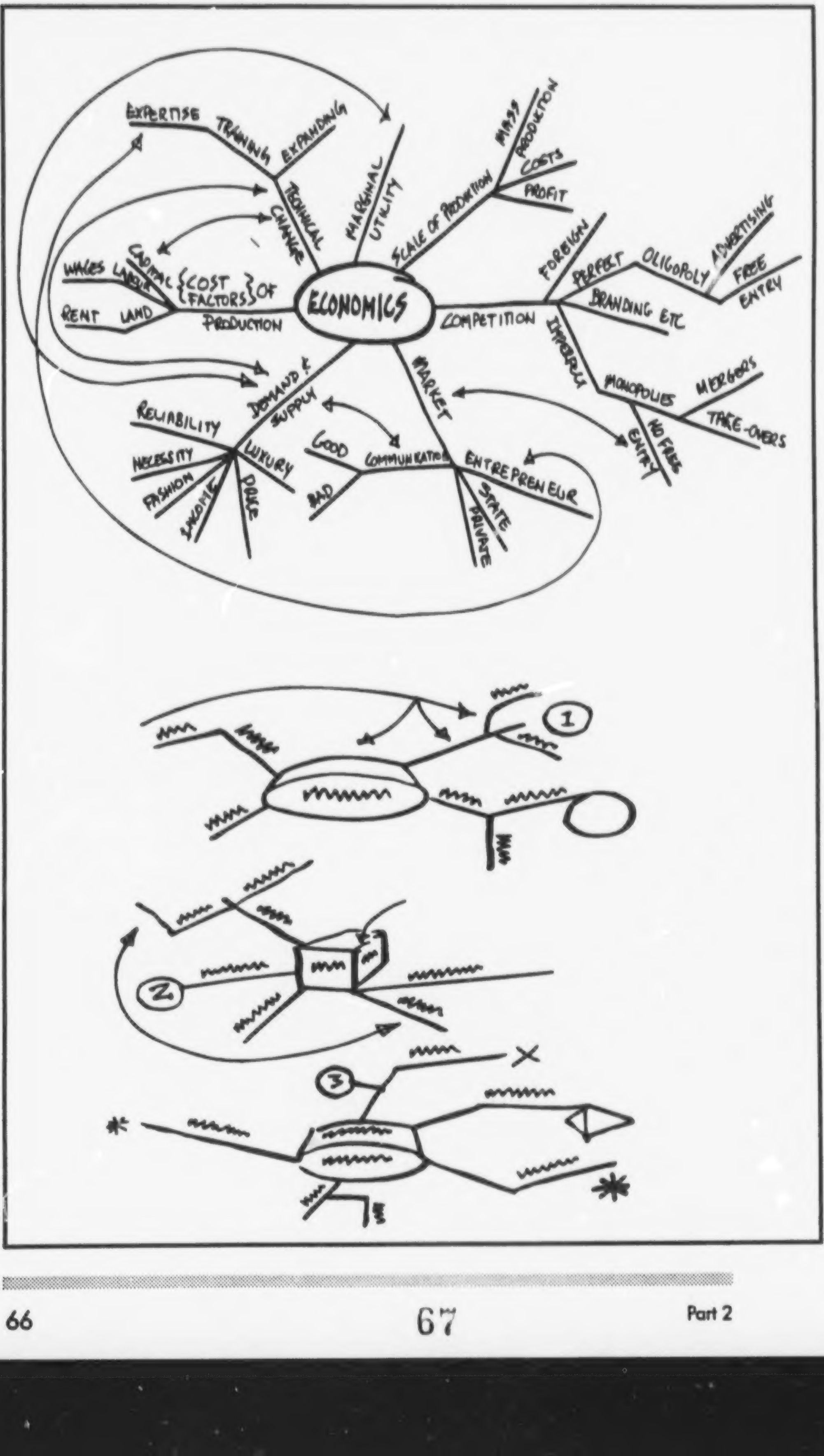
The purpose of all this has been to provide you with a background of what computers are so that you can talk sensibly about computer systems.

---

* Tony Buzan. (1976). *Use your head.* British Broadcasting Corporation, London.

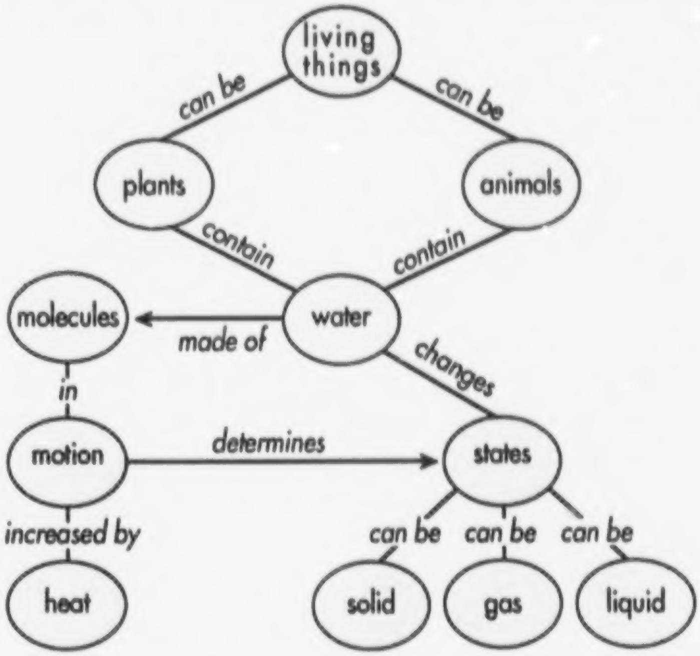
Joseph Novak and Bob Gowin. (1984). *Learning how to learn.* Cambridge University Press, Cambridge.

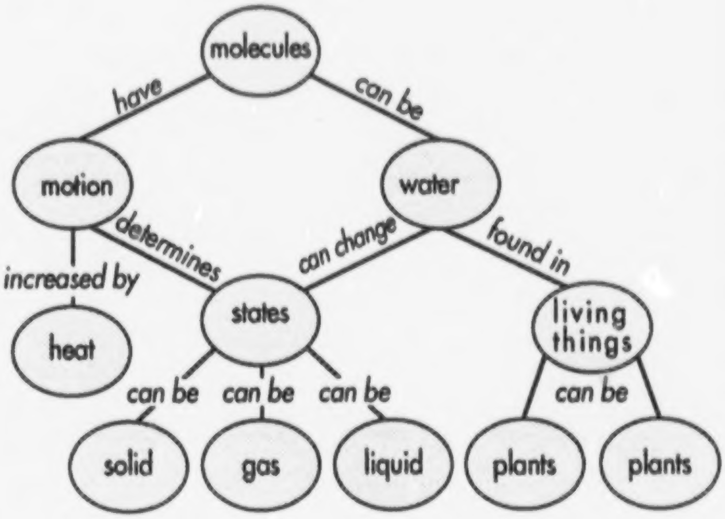
Student-generated reviews: **Buzan's "Mindmaps"**
Instead of pages of text, maps can be developed by learners to help them review learning guide material.


ECONOMICS
EXPERTISE
TRAINING
EXPANDING
TECHNICAL CHANGE
MARGINAL UTILITY
SCALE OF PRODUCTION
MASS PRODUCTION
COSTS
PROFIT
COMPETITION
FOREIGN
PERFECT
OLIGOPOLY
ADVERTISING
FREE ENTRY
BRANDING ETC
IMPERFECT
MONOPOLIES
MERGERS
TAKE-OVERS
NO FREE ENTRY
MARKET
ENTREPRENEUR
STATE
PRIVATE
COMMUNICATION
GOOD
BAD
DEMAND & SUPPLY
RELIABILITY
NECESSITY
LUXURY
FASHION
INCOME
PRICE
WAGES
LABOUR
CAPITAL
RENT
LAND
{COST FACTORS} OF PRODUCTION
1
2
3

Novak's **'Concept maps'**

Given key concepts such as heat, molecules, motion, water, states, etc. learners must create maps of how the concepts are related. Great for review purposes.


living things
can be
can be
plants
animals
contain
contain
molecules
made of
water
changes
in
motion
determines
states
increased by
can be
can be
can be
heat
solid
gas
liquid


molecules
have
can be
motion
water
determines
can change
found in
increased by
states
living things
heat
can be
can be
can be
can be
solid
gas
liquid
plants
plants

Competency assessment

As has been stated in Part 1 of this manual, it is not the responsibility of the learning guide to undertake the final assessment of the learner's competency. Appropriate assessment procedures will need to be designed and implemented so that learners can demonstrate their proficiency in the competency(ies) to an assessor, either to an industry or workplace standard or to the performance level stated in the learning outcomes.

A wide range of assessment procedures exist for evaluating a learner's performance. The competency required will determine the most suitable assessment method(s). For example, knowledge-based competencies may be assessed using 'pen-and-paper' tests or computers (e.g. simulations) for evaluating problem-solving or decision-making competencies. Physical (manual) skills and/or attitudinal behaviours would best be determined by the learner demonstrating the competency in the workplace (or as near to real-life as is practicable using a simulation or role-play) while being observed by a teacher/trainer or industry-based assessor. This may have to be repeated several times. Paper and pencil case studies can also be used to assess attitudinal behaviours, although care should be taken in inferring actual competence. Knowing what to do or say may be different to what the person **actually does** when placed in a real work situation.

The ultimate goal of the guide is to assist the learner attain the knowledge, skills and attitudes necessary to meet all the requirements of this final competency assessment. It may inform learners about the assessment procedures, however the guide is not part of that assessment process.

The glossary

A glossary, giving definitions of terms frequently referred to in the learning guide, should be included as an aid to the learner. It need not be very long; some glossaries contain only a few words.

The glossary can be placed at the front or the back of the learning guide and learners should be directed to it in the introduction and during the learning activities.

A format for a glossary is shown below:

GLOSSARY

ACCREDITATION

Accreditation is the formal recognition by an accrediting authority that the content and standards of a course are appropriate to the award to which it leads and that the course and the methods adopted in delivering it are likely to achieve the purpose for which the course was or will be introduced.

ACCREDITING AUTHORITY

An authority empowered by a State/Territory or the Commonwealth to accredit courses.

ASSESSMENT

Assessment is the gathering of evidence, and the making of judgements based on that evidence, about individual students or trainees according to an agreed set of rules or standards. Tests, assignments and checklists are examples of common forms of assessment.

CERTIFICATION

The provision of a certificate or award granted as the result of an assessment process. It signifies the completion of a course of study and/or the achievement of a program of specified competencies.

COMPETENCE

Competence is the performance of a task to specified standards and in accordance with specified conditions.

A statement of competence describes:

- the skills that are used in the performance of the task (e.g. a list of the skills required by a competent typist);
- the standards of performance of those skills in terms of:
  - i) routine skills (e.g. words per minute, error rate and setting out) and,
  - ii) non-routine skills (e.g. time and stress management, interpersonal skills);
- the conditions associated with the normal performance of the specified skills (e.g. equipment being used, the work environment).

COMPETENCY-BASED TRAINING

A form of training and assessment with the following characteristics:

- A full list of the competencies in the TAFE component has been documented with specified standards and conditions for each competency.

(Developed by TAFE National Centre for Research and Development, SA, 1990).

References/Further readings

Although learners will have been directed to many resources as they worked through various learning activities, some bibliographic details may have been abbreviated, so it is useful to have full citations to most of the learning resources included in this section. Bibliographies should conform to accepted conventions, so get a copy of the latest *Style manual for authors and editors* produced by the Australian Government Publishing Service or some other similar publication.

Further readings (known in education and training as enrichment material) can be identified for those learners who may wish to explore a specific content area in more depth, but the inclusion of this type of material in the learning guide or in the resources may not be necessary for the learner to achieve the stated learning outcomes. It gives the learner the option to acquire more information.

Annotated bibliographies and further reading lists are preferable to just a list of books and non-print materials because they allow you to provide information to the learner about the type of content covered, what level it was written for, or sections that are interesting or inappropriate to read.

FURTHER READING

Gibbs, G., and Haigh, H. A *compendium of course evaluation questionnaires* Oxford Polytechnic. Standing Conference on Development Services, Occasional Paper 17.

A very useful set of checklists and ideas for course evaluation, which can be adapted for an open learning context. Most of the teaching it refers to is not materials based, but there are approaches which could be relevant to many forms of open learning. Has a useful opening discussion on the design of feedback and questionnaire items.

The Open University, *Professional development in education: designing effective self-instructional materials for adults.* Centre for Continuing Education, the Open University, Milton Keynes.

Includes workshops and a comprehensive pack of materials on developing your own self-instructional material, with sections on evaluation and feedback, for text and non-text components.

(From: *Evaluating open and distance learning*, Mary Thorpe, Longman, p. 153, 1988).

PART OF ANNOTATED BIBLIOGRAPHY

Amos, W.M.G., (Ed.) Basic immunology. Butterworths London 1981, pp 188.

The author has covered comprehensively in this book the scientific spectrum of immunology in the now standard fashion ranging from a historical introduction, through descriptions of components of the immune and allied systems, to some more clinical examples of immune processes in action. There are useful summaries to each of the fifteen chapters, and the book is well indexed but not so well referenced for further reading. The unusual aspect of the text is the way in which the author has skillfully provided a clear, exciting introduction to immunology without neglecting the essential biological context of the science. The concise theoretical information presented in the chapter on techniques is of particular value. There are also good sections on tolerance, memory, the genetics and bioassembly of immunogloblins and monoclonal antibodies. The text has an adequate number of tables and line-drawn figures, though the latter are often cluttered in presentation and hence a little difficult to follow.

Bier, O.G., da Silva, W. D., Goetze, D. and Mota, I. Fundamentals of immunology, New York Springer - Verlag 1981, pp 422.

The authors of this book state in the preface that they have set out to produce a textbook for medical and biology students receiving their first introduction to immunology. The progression through the subject matter starts with a description of the various components of the immune response followed by consideration of how the various elements interact in normal and pathological circumstances. Detailed references are not given, but each chapter is followed by a list of selected further reading. The book is comprehensive and well written with clear diagrams and photographs illustrating the information given. The book is not - nor is it intended to be - a reference text. It is essentially a book of the middle ground between fundamentals and an introduction.

Bowry, T. R., Immunology simplified. 2nd ed. Oxford University Press. 1984 pp 230.

This compact paperback is an introductory text for biomedical and life science students who wish a short, readable, 'simplified' overview of the constituents and mechanisms of the immunological reactivity of the organism and their applications to practical clinical problems. The book is divided into 13 chapters covering the now familiar sequence of biological aspects and humoral and cell-mediated immunity, complement, HLA, immunmoregulation and tolerance, immunity to infections, transplantation immunity, autoimmune disease and specific and non-specific immunity. At the end of each chapter there is, on average, six references for further reading. A useful addition for students and teachers is a 14-page Technical Appendix which covers the basic principles of a range of standard tests to investigate the immune system e.g. agglutination, CFT, IF, ELISA, RIA. Finally, there is a 14 page glossary and index.

Clark, W.R., The Experimental foundations of modern immunology 2nd ed., John Wiley and Sons, New York, 1983 pp 453.

This is an excellent book due largely to the unusual form of presentation used by the author. In 11 chapters the author presents, in chronological order, the crucial experimental evidence from which our current understanding of the immune system has evolved. The data are presented in a logical, clear, critical and engaging manner. Each of the chapters is concluded with a bibliography which includes both general and key research references referred to in the text. The book also contains a valuable 10-page glossary of terms.

(From: *Resources in immunology.* Produced by P. Bruhn for the subject 'Immunology' in the Associate Diploma in Applied Science (Medical Laboratory), Victoria.

Writing supplementary learning materials

The learning guide's purpose, as previously stated, is to direct the learners to existing resource materials within a structured learning activity. However, there will be occasions when the kind of information to which you need to refer your learner will not be available, even after the most thorough of searches. In this case you will need to produce your own learning materials or adapt available resources very heavily.

This material can be included in the learning guide itself, if only 1 or 2 pages long, or it can be treated in exactly the same way as all the other learning resources, with learners being directed to it by name and location.

The material you are most likely to develop will be print-based, although there is no restriction if you wish to produce your own learning resources in other media; it will just take more time, and the costs associated with design and production will be higher.

This section will concentrate on the writing of short, print-based supplementary learning materials, and is an extension of the work you will do when writing your learning guide.

These teacher/trainer-made materials are analogous to the handout used in traditional classroom instruction. These specially produced materials are valuable because they can present information, concepts or instructions in a language and style that best suits the learners.

Remember, even a one or two sheet resource can be time consuming to develop, so direct learners to existing materials whenever possible.

You may want to develop supplementary materials if:

- the information is unusual, and not available from any standard source
- the information or data is particularly new and not available through usual sources such as journals, data sheets, etc.
- the available materials are written in too much detail
- the reading level of the materials is too high (or too low) for the learners
- special instructions for laboratory, workshop or other activities, projects, industrial site visits, etc. are needed.

In writing additional materials:

- use language that is clear and at a level appropriate to the learners
- define or explain new technical terms if they are used for the first time (and put them in the glossary)
- include diagrams, graphs, etc. for greater clarity and to maintain interest
- include only essential information; keep it brief and to the point
- if you include other people's work (text, illustrations,etc.) make sure you do not infringe any copyright laws and that you properly acknowledge the author(s) and/or source(s) of the information and obtain their permission to use the material if appropriate.

The development of supplementary materials is sometimes unavoidable, but it should only be done when all reasonable attempts to find suitable existing resources have been exhausted.

Presentation guidelines for learning guide writers

If you decide to design the guide by yourself the following guidelines should prove simple, but effective. You can also use them if you have to produce supplementary learning materials to complement the guide and existing resources.

Some basic rules for designing learning guides and resources

- **Use the KIS(S) technique** - short for Keep It Simple. The more complicated a design, the less a learner may comprehend.
- **Labelling** in diagrams and illustrations should be kept to a minimum. Arrows within a diagram or illustration may be useful if they help to eliminate ambiguity.
- **Line drawings** are most effective in helping most learners achieve learning outcomes which require the explanation and comprehension of concepts.
- **Photographs** are useful where it is important that the learner understands an object's 3-dimensional structure, or as a substitute for reality. A sequence of photographs is useful when explaining a process or procedure. If photographs are used make sure they are properly screened for reproduction. A good photograph, poorly reproduced can be very frustrating for the learner!
- **Colour** should be used to highlight important information or to increase the similarity of illustrations to real objects or situations (and therefore aid identification). The use of colour, however, frequently does not contribute to learning and, if used indiscriminately, may actually distract from important features. If colour is a consideration in your guide, be aware that it will add significantly to the cost of reproduction.

- **Illustrations** should be designed to serve a **specific function**. They should contain no more information than is necessary for the intended message to be received by a particular audience. To this end, if you intend to use diagrams and illustrations in the guide, you should **seek the opinions of others** in order to assess the comprehensibility and appropriateness of the illustration(s). These others can either be your colleagues or, preferably, those at the same knowledge level as your potential audience.

Presenting information using text*

It is easier for learners to learn when the format helps, rather than gets in the way of, understanding and organizing the information. Use of good text layout principles can aid the learning process by:

- Making the text easier to read
- Relating the words and illustrations in the text clearly
- Giving an obvious organizational pattern to the content
- Directing attention to key points
- Separating blocks of information
- Facilitating rapid scanning and retrieval of information
- Providing note-taking space.

Good text layout involves:

- A text layout which helps the eye move from right to left and top left to bottom right of the page
- The placement of space on the page
- The use of words or phrases to headline, highlight or distinguish blocks of text
- The use of underlining, **boldface**, *italics*, lines etc. to highlight key ideas

---

* The material on text and illustrations has been included from K. Silber and M. Steinicki, Writing training materials, in Robert Craig (1987) *Training and development handbook*. 3rd Ed., McGraw-Hill as it is a succinct summary of these two areas.

- The use of tables, graphs, matrices, flowcharts and diagrams to simplify and highlight concepts and procedures
- The placement of words and illustrations in proper relation to one another so they work together.

Use the following guidelines to format pages of printed text:

- Leave lots of white space on the page to break up the density of the text
- Use short topic or subtopic words or phrases on the left side of the page with corresponding explanations on the right side
- Put boxes around text portions of special interest or importance
- Place illustrations and related word explanations next to each other
- Use symbols such as ▲ ◆ ● ✱ instead of numbers for lists - except when the list is a procedure with steps that must be performed in a certain order
- Use short lists separated by headings
- Leave lots of blank space for note-taking
- Organize sentences into short paragraphs
- Use different type faces and sizes to differentiate chapters, headings, and subheadings - **but don't overdo it!** Serif types faces (like the one you're reading now) are usually used for the main text to aid word recognition and speed of reading. Sans serif faces (e.g HELVETICA or FUTURA) are more common as chapter and page headings.

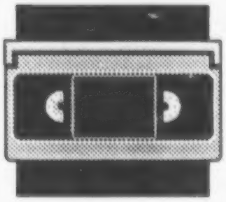
Visual 'signposts'

Visual signposts can be dot points, boxes, colour - in fact, any decorative device which signals to the learner, for example:

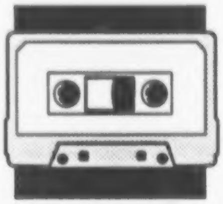
- the importance of that information with respect to the surrounding text
- a change of learning activity
- self-assessment questions to complete
- warnings about the use of equipment and/or materials.

The most used visual signposts in learning guides are graphic symbols or 'icons', which are placed in the margins, and alert the learner to the type of material that lies ahead. It doesn't matter what symbols you use; just be sure they are distinct, consistent and their intent is obvious to the learner.

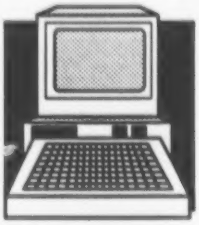
Learning guide writers sometimes produce a legend at the beginning of the guide, usually in the introduction or information to learner section, which describes what each symbol means. This is demonstrated in the following example:



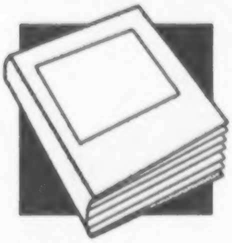
videos



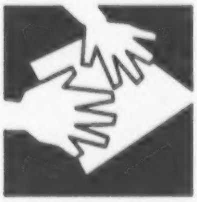
audio tapes



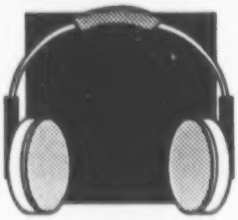
CAL (Computer Assisted Learning) programs



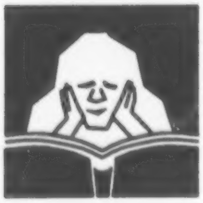
books



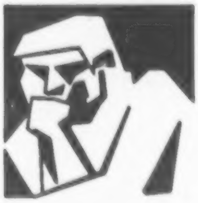
undertake an activity



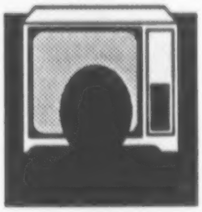
listen to an audio cassette



read a reference



revise or reflect



watch a video cassette

Presenting information using illustrations

Often the message or information presented in textual format can be enhanced or made more understandable by a relevant, properly prepared illustration. Conversely, an illustration can be made more understandable when accompanied by appropriate labels and/or text.

Specifically, when they are used with words, illustrations can help learners visualize:

- representations of ideas, concepts, things
- relative sizes of objects
- steps in a process
- specific details of objects
- parts of objects
- generalized shapes
- relative distances.

Use illustrations alone, or illustrations and word combinations to:

- influence,
- direct,
- organize, or
- simplify

learners' perceptions of instructional messages. Some techniques for using text and illustrations effectively are to:

- make illustrations attractive to the learner
- use captions, questions, or explanations, with illustrations, to:
    - o help the learner classify the illustration
    - o tell the learner what to look for in the illustration
    - o help the learner remember the illustration

- initially use less detailed graphics to convey an overview of the concept or object
- later, use more detailed graphics to show specific examples or portions of a concept or object
- use line drawings, rather than pictures, to show or highlight the details of the object
- use lines, arrows and highlighting in illustrations to:
  - o emphasize items
  - o separate items
  - o indicate movement
  - o show hierarchical relationships
- in sequencing illustrations, go from the big view illustration to the discrete parts illustrations and back again into the big view illustration - and do so frequently to keep the learners oriented.

Presenting information using tables

A table is an ordered arrangement of numerical data in columns and rows. Tables encompass an immense variety of forms, yet all must obey some fundamental rules of common sense:

- they must have a clearly stated purpose
- they must have a physical shape that organises data effectively so that the data's purpose becomes self-evident
- they must be typographically clear and legible
- they must be arranged neatly
- they must be attractive as images.

While the choice of layout will depend on desired emphasis, attractiveness and economy of space, the following points can apply to most tables:

- Aim at visual impact so that trends will be evident without further refinement of the data.
- The table as a whole includes a title and all explanatory notes. The title should state **what, how, where and when** about the data and by this it should be self-explanatory.

- Arrange data in columns, not rows for easier comparison. Column and row headings should contain the standard abbreviations of the units of measurement if they have not already been included in the title.

- Present data in a logical sequence with the most important data at the top of the table. If totals are less important than individual items place them at the bottom of columns or to the right of rows; if they are more important place at the top or left.

- Tables need space. Spacing and ruling can aid the reader in dividing the bulk of the data into discrete groups for easier interpretation. Use as much space or as many lines as is practical. Too large a table with narrow margins is just as inefficient as a small table with excessive margins.

- Avoid placing a table sideways on a page to alleviate the need for the reader to rotate his/her head or the page.

- Record numbers at the same level of accuracy and preferably round off to the nearest full number or order of magnitude.

- Use asterisks and other symbols, with footnotes below, for comments.

Presenting information using charts

Why use charts?

- To show and tell facts effectively.

- To save the learner's time as information presented in this form is easily understood.

- To direct the learner's attention to aspects considered important.

- To give the learner a context within which to perceive the important facts.

- To display statistical relationships more clearly than words or numbers permit.

- To plot relationships that could not otherwise be understood.

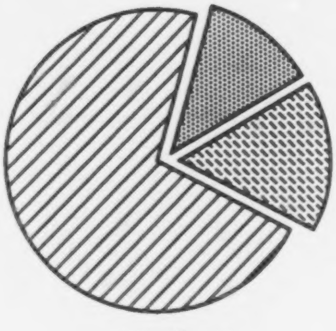
- To illustrate nonvisual concepts visually.

- To improve the effectiveness of communicating visual factors.
- To gain attention during a presentation.
- To add variety to a page of text to make it visually more interesting.

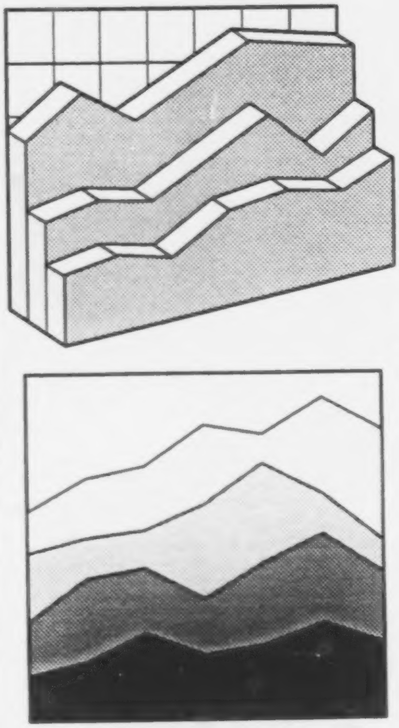
Types of charts

- **Pie** charts show the proportion of parts to the whole
- **Bar** charts show proportions related to each other, irrespective of the total
- **Column** charts show comparisons of amounts
- **Step** charts show comparisons of amounts over time
- **Line or curve** charts show fluctuations over time
- **Surface or area** charts show proportional trends over time
- **Scatter or dot** charts show patterns from which conclusions can be drawn
- **Maps** show relationships of elements in space
- **Flowcharts** show relationships of processes
- **Organization** charts show human relationships
- **Schematics** show relationships of theoretical concepts
- **Time lines** show simple time sequences
- **Time-and-activity** charts show process in combination with time
- **Step-by-step** charts show stages of thoughts, if/then sequences and alternative courses.

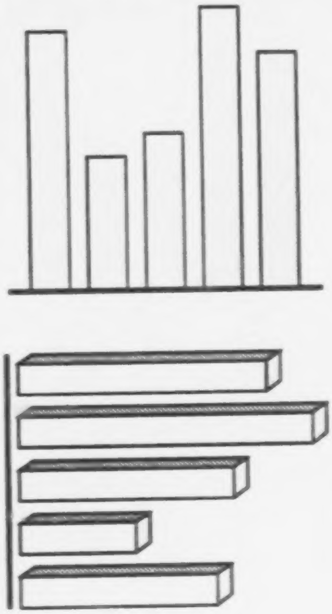
A range of chart types is shown on the following page.



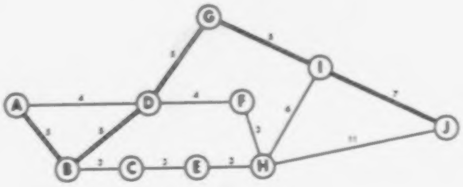
Pie chart



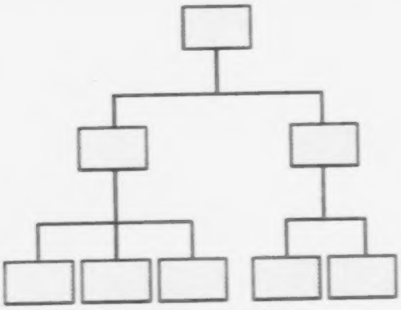
Area charts



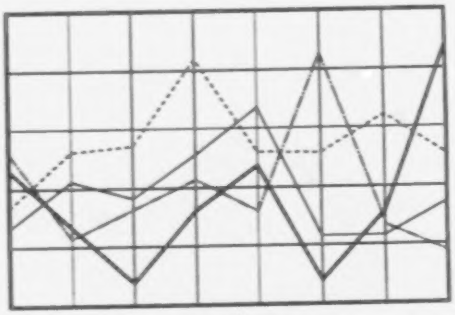
Bar charts


G
I
A
D
F
J
B
C
E
H
4
4
6
7
11

Activity chart



Organisation chart



Line chart

As a learning guide writer your time is valuable, so you do not want to be sitting down for hours producing highly complicated text and visuals.

There are several sources close at hand to aid you in the design of your guide and save you time.

Use newpapers and magazines

These are a great source for:

- typefaces
- cartoons
- graphics
- photographs
- borders and frames.

Use adhesive lettering and symbols

Many different rub-on type styles, tones and symbols, in a range of colours and sizes can be purchased from art supply stores, newsagents and stationery stores. They are relatively easy to use after a bit of practice and, when done well, the final image looks very professional.

Use 'Clip-art' books.

These books, available in many libraries, are compilations of different graphic images (borders, frames, cartoons, illustrations or charts). These collections are not covered by copyright and can be freely photocopied, reduced or enlarged as required and used in the production of your learning guide.

Use a computer

Computers are easy to use and, with the range of software now available, allow trainers to produce excellent printed materials, especially if the computer is attached to a high quality laser-printer. Powerful and affordable wordprocessing software is readily available which will allow text to be generated in a range of styles and sizes. Sophisticated drawing, graphing and desktop publishing software permits any teacher/trainer to produce high quality materials.

This is currently the best method for producing learning guides because of:

- the quality of the finished product
- its versatility in producing the desired layout
- the range of typefaces, graphic elements and templates available
- the ease with which changes can be made.

Checklist for presenting information in learning guides*

Content

- ☐ Is each section and/or unit clearly identifiable?
- ☐ Are the learning outcomes written in the approved manner?
- ☐ Are overviews, reviews or summaries of the content included?
- ☐ Are headings clear and with consistent typefaces?
- ☐ Are there subheadings to assist the learner read the text?
- ☐ Is there a contents and acknowlegements page?
- ☐ Are glossary, references and self-assessment questions and answers pages included?

Layout

- ☐ Is the contents page clearly organised?
- ☐ Are page numbers located on top or bottom margins? Are they in the correct sequence?
- ☐ Has an easy-to-read typeface been selected e.g. Times, Helvetica?
- ☐ Is the type size appropriate for the learners?
- ☐ Has sufficient space been left so that text blocks are separated to aid reading and/or allow learners to add their own notes?
- ☐ Are words underlined, boldfaced or boxed, to highlight key ideas? Are visual signposts or icons designed into the layout?

---

* Adapted from James Hartley (1985) *Designing instructional text*. 2nd Ed., Kogan Page, p. 141.

Illustrations

☐ Does the illustrative material contribute to better understanding of the text?

☐ Is the illustrative material placed appropriately in the text, and in sequence within it?

☐ Does the illustrative material have clear captions?

☐ If examples are provided in the text, are these clearly recognisable as such?

☐ If tables, graphs, diagrams and examples are presented in the text, are they clearly drawn so as to be easily understood?

☐ If the text contains mathematical expressions, are they presented in a standard way throughout the text?

☐ If colour is used in the illustrations, is it necessary and appropriate?

Appendix A

Guides or modules?

Sorting out definitions

A rose by any other name..?

The trouble with definitions is that no two people can ever agree on the wording! While preparing this package it became evident that a number of terms such as *learning guide, learning module, study guide, learning unit* and *teacher guide* were being used, often interchangeably, to describe quite different entities. To add to the confusion, each State/Territory seems to have its own definition for these terms. Even within a single organisation there are significant differences over the meaning of many of these terms.

While not wishing to contribute further to the confusion, and with the intention of aiding readers of this manual, the most common terms used in the field have been selected and descriptions proposed so that there is a common reference point.

Learning guide

A learning guide is a structured booklet designed to direct the learner through a series of learning activities, and to a range of resources, to achieve specified competencies or learning outcomes. It can be seen as a roadmap or set of directions that shows the learner how to get from where they are to where they want to be (for example, employed and skilled in their chosen (or a new) occupation). It directs the learner to the appropriate learning resources, where to find them, to the essential information contained within these resources, and to additional resources for further reading if the learner wishes to pursue the topic/subject matter in more detail. It describes learning activities which they must undertake to acquire knowledge and skills, as well as providing feedback in the form of self-assessment questions (*formative assessment*), sometimes using a computer-based testing system to provide that feedback.

These learner-centred booklets are usually in a printed format. The learning guide can vary in length. It may range from 10-20 pages and take a learner 8-10 hours to complete. However, where learning guides are used in industry they tend to be shorter (in the 1-4 hour range). Learning guides are not textbooks. Every word counts! They usually do not contain large amounts of content specific information themselves. Learning modules on the other hand are usually much larger and basically self-contained; that is, they contain all the information **and** resources a learner is likely to need to achieve the learning outcomes. Learning guides are designed to meet a *specific learning task or competency* rather than cover an entire topic or subject area.

The guide, to use computer jargon, should be user-friendly and adhere to basic principles of adult learning and instructional design. More importantly, it should be well-designed so the learner is motivated to achieve the learning outcomes or competencies in an enjoyable, interesting and rewarding way.

Although the guide states the standard that must be achieved before the learner is considered competent and can direct the learner to the appropriate competency test where the learner must actually demonstate the skill (*summative assessment*), **it is not the learning guide which does the final assessment of the learner's competency**. That responsibility still resides with the teacher/trainer or assessor.

Study guide

A study guide is primarily concerned with the organisational component of learning, that is, how to work in an independent, external or open learning mode. A study guide is a component of an entire learning package normally associated with off-campus/distance education/open learning courses offered by educational institutions.

On average they are about 10-20 pages in length. It is designed to assist learners and usually contains:

- an outline of the course structure
- overviews of subjects (or units)
- biographical information about the tutors and how to contact them

- study skills information
- hints on writing assignments/essays
- the scheduling of practical sessions (if appropriate)
- prescribed textbooks for the subject(s)
- assessment/study timetable and enrolment/re-enrolment information.

It is important to note that no learning of subject-specific knowledge takes place when the learner uses this type of guide. A study guide is usually self-contained, although some course developers have it as the front-end of an introductory module or unit.

A briefer version (2-4 pages) known as the *subject guide* is normally given as a handout to on-campus students and is common in TAFE to orient students to the course. It usually contains the course aims and objectives, descriptions of topics or units in the subject, prescribed and recommended texts and assessment criteria for the subject.

Teacher's/Instructor's guide

This guide is a *companion booklet* for the teacher/instructor which supports a topic, subject or entire course of study. It is usually designed as a resource to assist them to conduct classroom teaching activities and may include objectives, teaching strategies, instructional resources available to support classroom activities, tests, assignment suggestions and lesson plans. As the title implies it is only for the teacher/instructor and is *not a learner resource.*

Learning module

The use of the term module is fairly well entrenched in TAFE/industry jargon. The problem is not all people agree about what the term means.

Various designs and applications of learning modules have been available since the late 1960s. Learning modules with their emphasis on individualised and/or self-paced learning have been used in a large variety of settings in TAFE and industry. Other terms which are synonymous with learning module are the *learning activity package* and *learning unit*.

A learning module has been defined by Goldschmid and Goldschmid (1973)[*] as "a self-contained, independent unit of a planned series of learning activities designed to help the learner accomplish certain well defined objectives". A fuller description is found in Parkinson (1986)[**] which in part defines learning modules as "discrete and integrated packages of knowledge and skill complete within themselves, dealing with one aspect or a number of aspects of vocational education...While the modules stand on their own, the learning ...must be assessable...and capable of being linked to other modules...They tend to be task rather then discipline oriented and of variable length depending on the time taken to achieve objectives".

It is this *self-contained nature* of the learning module which has gained it such popularity. All resources necessary to complete the module are included. As most learning modules are print-based a review of both past and current modules indicates that much of the material incorporated in these modules has been rewritten/reformatted from other sources, sometimes by necessity and other times to 'fit the format'. This can be wasteful both of time and resources.

This 're-invention of the wheel' syndrome has added literally 1000s of hours to the time required for module development. In order to minimise the difficulty of the learner accessing resources it has become normal for developers to incorporate all appropriate textual materials, and in some cases non-print resources such as videos, etc. into the module. Although beneficial to the learner, the long development time and associated production and dissemination costs has placed a heavy financial and resource

[*] Goldschmid, B. and Goldschmid, M. (1973) *Modular instruction in higher education: A review*, *Higher Education 2*, 15-32.

[**] Parkinson, K. (1986) *A glossary of terms used in TAFE*, Adelaide: TAFE National Centre for Research and Development.

burden on organisations who have developed these kinds of modular approaches.

It is true that there are many well produced learning modules in existence. However, the purpose of this paper is not to detract from that, but only to point out that the circumstances under which they were produced have changed and it is now time to reassess the development of the modular approach and consider adopting a modified and simplier form of learning resource - *the learning guide*.

Modularisation

The term modularisation is concerned with the way formal educational and industry-based training programmes are designed and delivered using the module as previously defined. Competency-based training, open learning and distance education (off-campus) programmes use the modular approach as one of the primary methods for designing and delivering learning programmes for certification or skills updating. Sometimes this modular approach is integrated with a computer-managed learning system. The module has become a favoured instructional method for packaging the elements of knowledge and skill required by the learner to achieve prescribed outcomes or occupational competencies.

The term modularisation should be used with some caution as concerns have been expressed in TAFE and elsewhere about the concept of a *fixed time module*. To set a limit of notionally 40 hours on a module is inconsistent with the current view on how learners achieve competency. No matter how a module is designed, individuals will take different lengths of time to complete it, based on their own prior knowledge and their ability to learn new knowledge and skills.

A module of 40 hours implies a considerable number of tasks and may well be served by having a learning guide for each discrete topic or unit of work and would assist the learner progress from one task to another. The learning guide's function is as a roadmap to help the learner through a part of a module. Hence, the learning guides are joined together and related in much the same way as the individual maps of a street directory are.

The crucial issue is that a module cannot be measured by a prescriptive time frame as no two learners can hope to achieve competency at the same rate.

Learning guides or modules? - it's your decision

In a time of dwindling financial resources and reduction of experienced support staff (curriculum/training course developers, instructional designers and educational technologists) due to budget cuts, training organisations and educational institutions will need to move more towards the learning guide approach. This approach still maintains many of the benefits of the learning module (defined learning outcomes, structured learning activities, feedback via self-assessment questions, etc.) but the utilization of existing resources from a variety of sources significantly reduces the time and expense associated with resource development.

In the end your education or training needs, and the resources available to you, will determine whether you produce a learning guide or the more self-contained module. This paper advocates that, where possible, the learning guide is produced first. After a suitable field trial and evaluation the decision can be made about whether or not the more comprehensive learning module or other learning resources are required.

Appendix B

Getting further information on industry and award restructuring

A bibliography

As learning guides are an integral part of industry and award restructuring and competency-based training, this bibliography provides the reader with an up-to-date listing of the most major works relevant to the Australian context.

This bibliography has been produced by Ms Gail Vigilante, Senior Librarian and her staff at the TAFE Library, Royal Melbourne Institute of Technology. Her permission to reproduce the bibliography in this manual is acknowledged.

- ASTEC (Australian Science and Technology Council).
  Wealth from skills: measure to raise the skills of the workforce: a report to the Prime Minister, 1987
- AUSTRALIA, Dept Employment Education and Training,
  Entry training: issues and opportunities arising from award restructuring, 1989
- AUSTRALIA, Dept. Employment Education and Training.
  Training needs analysis
  Trainer Training Service, 1989
- The Australian TAFE Teacher
  Competency based training - the way to go
  23, 3, September 1990 (whole issue)
  (Includes supplement Getting a hold on restructuring: award restructuring, national curricula and TAFE teachers. TAFE National Centre for Research and Development for the Australian Committee on TAFE Curriculum)
- CLARK, Terry
  Getting to grips with skills audits
  TAFE National Centre for Research and Development, 1990
- CROSS, P in
  Challenge for TAFE
  Australian TAFE Teacher, 1st quarter 1989

- CROSS, P in
  Award restructuring - implications for TAFE
  Australian TAFE Teacher, 4th quarter 1989
- CURTAIN, R
  Guidelines on career path development and job restructuring 15 issues to consider
  University of Sydney. Dept. Industrial Relations, 1988
- CURTAIN, R
  What's involved in doing a skills review?
  VICTORIA State Training Board, 1989
- CURTIN, Penelope and OLWENY, Phoebe
  Bibliography on award and industry restructuring
  SA Department of Employment and TAFE, 1989
- FIELD, L
  Skilling Australia, Longman Cheshire, 1990
  (see review The Weekend Australian, Investing in People, October 13-14 1990, p.41)
- FOYSTER, J
  Getting to grips with competency based training and assessment
  TAFE National Centre for Research and Development, 1989
- HAINES, Christine
  Award restructuring: implications for women
  WA Department of Employment and Training, 1989
- HALL, W and HAYTON, G
  Industry restructuring and TAFE
  TAFE National Centre for Research and Development, 1988
- HALL, W and HAYTON, G in
  Getting ready for the restructure
  Australian TAFE Teacher, 4th quarter, 1989
- HAYTON, G and HARUN, M
  Training for integrated manufacturing - a review of recent literature
  TAFE National Centre for Research and Development, 1988

- HAYTON, G and LOVEDER, P
  Industry restructuring and implications for TAFE
  TAFE National Centre for Research and Development, 1990
- LLOYD, B
  Education pathway in engineering education
  EPM Consulting Group, 1990
- LOUSE, S and CHATAWAY, G
  Resource implications for award restructuring
  TAFE National Centre for Research and Development, 1990
- MONIE, P and CURTAIN, R
  Industry restructuring: a case study
  TAFE National Centre for Research and Development, 1990
- NATIONAL TRAINING BOARD.
  Setting national skill standards (A discussion paper), 1990
- NSW DEPT of TAFE and Department of Industrial Relations.
  Award restructuring resource package for TAFE teachers
  Includes video 'Life after Debt' 29 mins., 1990
- PRATT, Vin
  Affirmative restructuring
  Australian TAFE Teacher, 4th. quarter 1989
- TAFE National Centre for Research and Development.
  Industry restructuring newsletter
  Nos. 1 to 8 (December, 1989 to October, 1990)
- VICTORIA, State Training Board.
  Award restructuring the challenges and opportunities for TAFE: a discussion paper, 1989.
- VICTORIA, Department of Labour. *Women's employment*
  Women and Award Restructuring Training Branch, 1989
- VICTORIA, Department of Labour. *Women's employment*
  Women and Award Restructuring Training Branch, 1990

Learning guides

Examples from education, training and industry

Introduction

The three examples included in this section have been produced by three organisations involved with vocational education and training. Two are from industry (Faulding Pharmaceuticals and Woodside Off-Shore Petroleum) and one from TAFE (TAFECOM, NSW). For each example, a small number of pages have been selected to highlight important instructional design and presentation features that were included in each programme. This manual does not propose that learning guide developers produce 'clones' of our model. The examples in this section are intended to show that final products can be very different, although each includes essential instructional design elements.

We encourage you to experiment with different approaches. These examples are a good starting point.

Note:
You will observe that the developers of these education and training materials have called the programs, modules. As we discussed in Part 1 and Appendix A, the use of the term module is well entrenched in TAFE and industry vernacular. However, these examples follow closely, although not exactly, the approach suggested by the authors for the development of learning guides.

The **first example*** has been selected from a series of training programs produced for in-house use by Faulding Pharmaceuticals in South Australia. Faulding is committed to the development of competency-based training programs for its shop-floor personnel.

The example, *Occupational health and safety*, is the first programme undertaken by shop-floor personnel. The training programme is printed on A4 size paper, single colour throughout, divided into five sections covering major content areas, a final section devoted to assessment, a programme completion form and a feedback sheet for use by the participants. The training programme is 38 pages in length. The cover is very basic and the whole programme is bound using spiral binding.

---

* Permission to use this example has been granted by Ms Lusia Guthrie, Manufacturing Manager, Fauldings Pharmaceuticals and Mr Roger Thompson, Thompson Consulting Pty Ltd., S.A.

The **second example*** was produced by Woodside Off-Shore Petroleum. The training program is designed to instruct personnel in performing hydrostatic pressure tests. The presentation of this material is quite different from the previous example. The information is printed on A5 size paper, single colour, except for contents and title pages which are printed in two colours, red and black. Each section is divided by a dark green cardboard interleaf for identifying individual sections easily. The whole program is contained in a 3-ring vinyl covered binder. The binder is light blue, with two full colour photographs on the front cover. The title, *Safety training,* appears prominently in yellow on the cover and spine of the binder, as does the company logo. Excluding interleaves, the program is approximately 45 pages in length, and divided into 8 sections. It includes 10 pages for the supervisor's checklist.

The **third example**** was developed by the Open College Network, NSW TAFE Commission for the Office Clerical Traineeship. This example is designed to provide learners with an awareness of anti-discrimination and equal employment opportunity issues. It is the third in a series of six programmes. Although this example could be classified as a module (because all the information required by the learner is contained in the programme), it is included for its innovative use of graphic elements and its overall layout. However, it still contains those elements essential to learning guides - introductions, learning outcomes, self-help questions, feedback, etc. The example provided was printed on A4 paper, single colour, and double sided. It is divided into 4 sections with a total length of 35 pages. A separate pre-test sheet and a learner evaluation sheet are also included.

---

* Permission to use this example has been granted by Mr Robert King and Mr Greg Colgrave, Woodside Off-Shore Petroleum, Karratha, Western Australia.

** Permission to use this example has been granted by the Open College Network, NSW TAFE Commission.

The examples are organised to provide illustrations of the ways in which the various components of a learning guide could be presented.

These include:

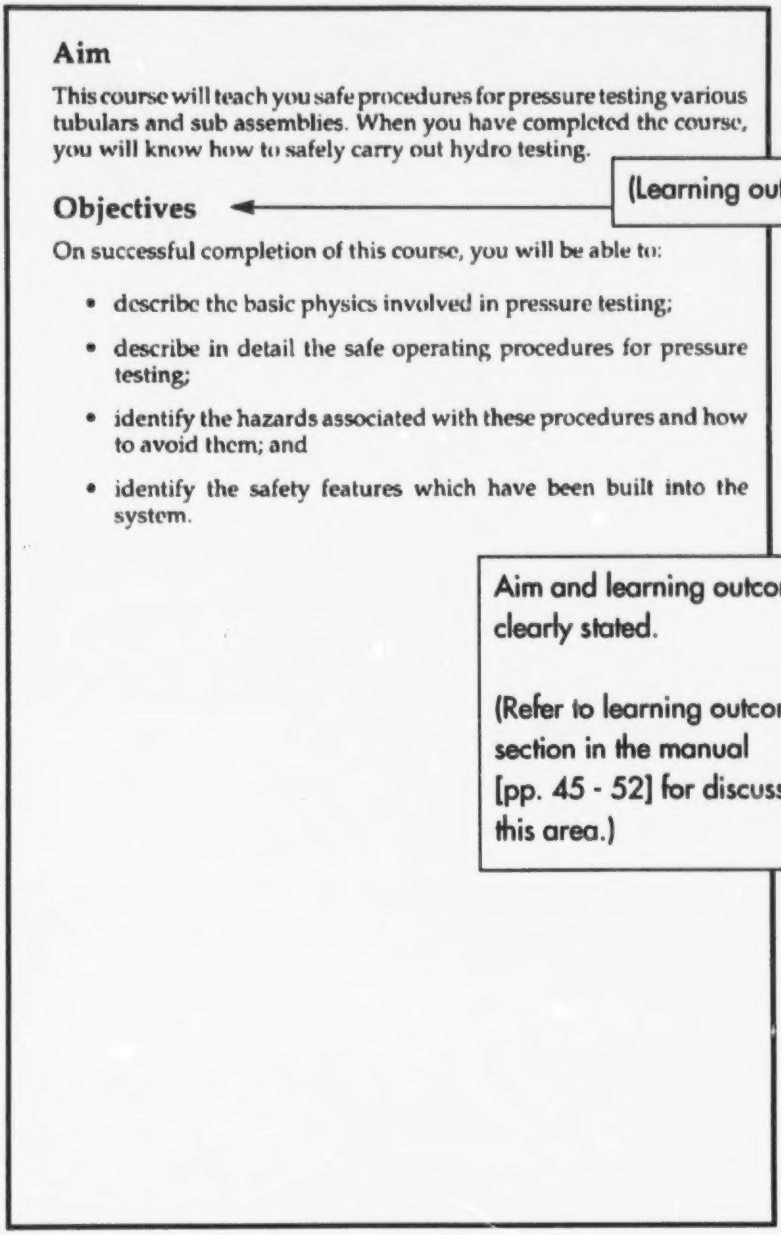
- a statement of objectives
- information to help learners use the guide
- learning activities
- assessment of learning (including pre-tests)

  and

- feedback to the learning guide developer.

> **Note**: This manual also has a complementary learning guide entitled *How to write a learning guide*, which provides another example of learning guide production.

Objectives



Aim

This course will teach you safe procedures for pressure testing various tubulars and sub assemblies. When you have completed the course, you will know how to safely carry out hydro testing.

Objectives

On successful completion of this course, you will be able to:

- describe the basic physics involved in pressure testing;
- describe in detail the safe operating procedures for pressure testing;
- identify the hazards associated with these procedures and how to avoid them; and
- identify the safety features which have been built into the system.

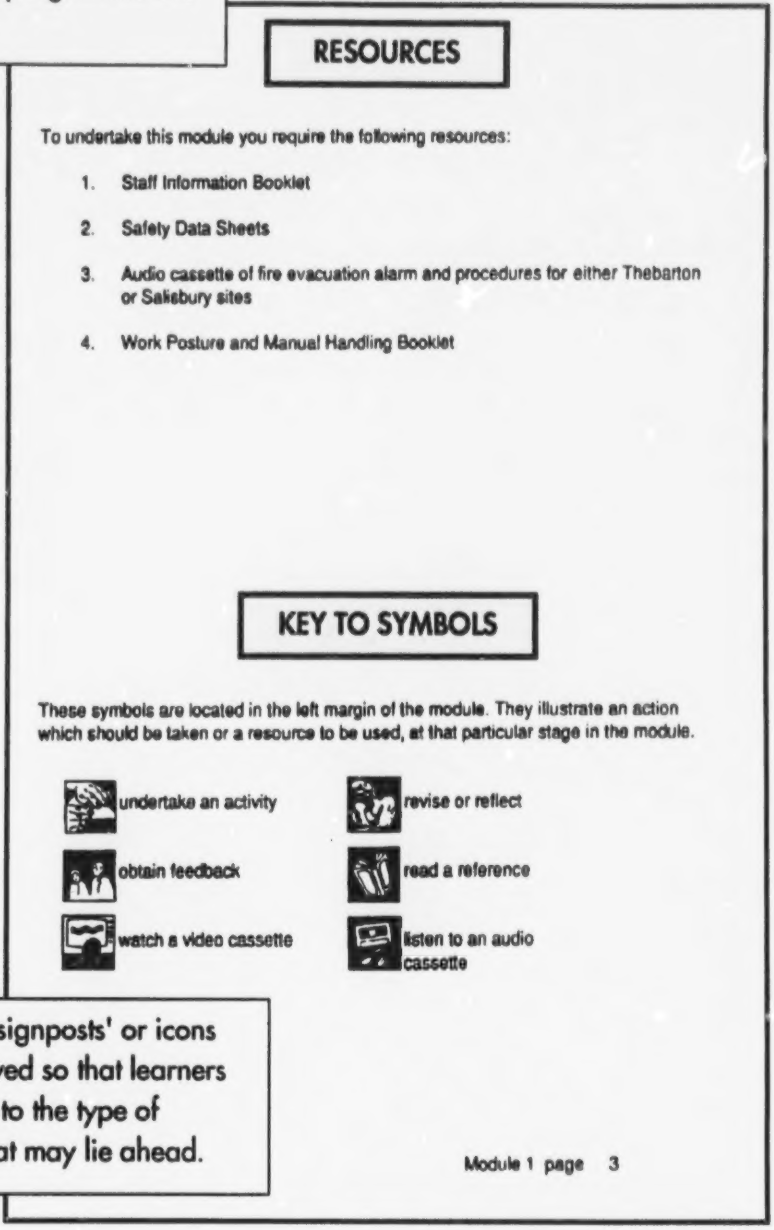
(Learning outcomes)

Aim and learning outcomes clearly stated.

(Refer to learning outcomes section in the manual [pp. 45 - 52] for discussion on this area.)

User information

All resources necessary to complete the programme are noted here.



RESOURCES

To undertake this module you require the following resources:

1. Staff Information Booklet
2. Safety Data Sheets
3. Audio cassette of fire evacuation alarm and procedures for either Thebarton or Salisbury sites
4. Work Posture and Manual Handling Booklet

KEY TO SYMBOLS

These symbols are located in the left margin of the module. They illustrate an action which should be taken or a resource to be used, at that particular stage in the module.

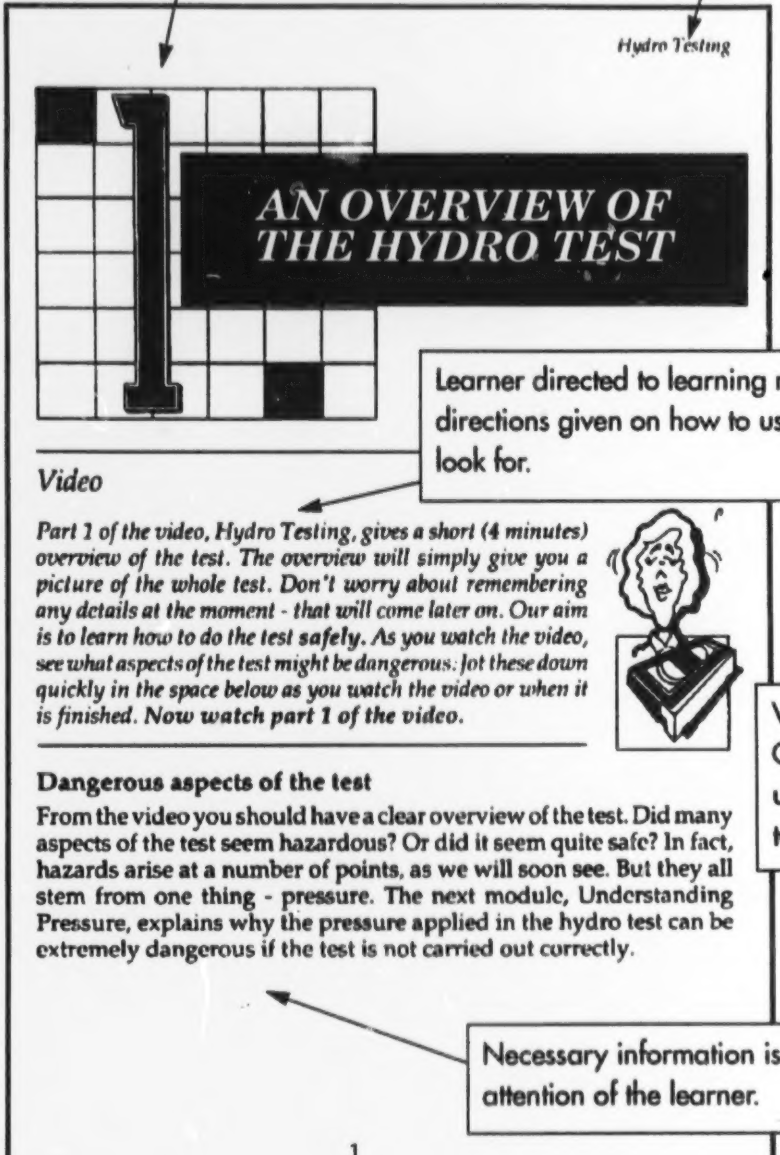
undertake an activity	revise or reflect
obtain feedback	read a reference
watch a video cassette	listen to an audio cassette

Module 1 page 3

The 'visual signposts' or icons are previewed so that learners are alerted to the type of activities that may lie ahead.

Graphic component indicates section and title. This is consistant throughout the programme.

Running heading (optional).



Hydro Testing

1

AN OVERVIEW OF THE HYDRO TEST

Learner directed to learning resource and directions given on how to use it and what to look for.

Video

Part 1 of the video, Hydro Testing, gives a short (4 minutes) overview of the test. The overview will simply give you a picture of the whole test. Don't worry about remembering any details at the moment - that will come later on. Our aim is to learn how to do the test ***safely****. As you watch the video, see what aspects of the test might be dangerous. Jot these down quickly in the space below as you watch the video or when it is finished.* ***Now watch part 1 of the video.***

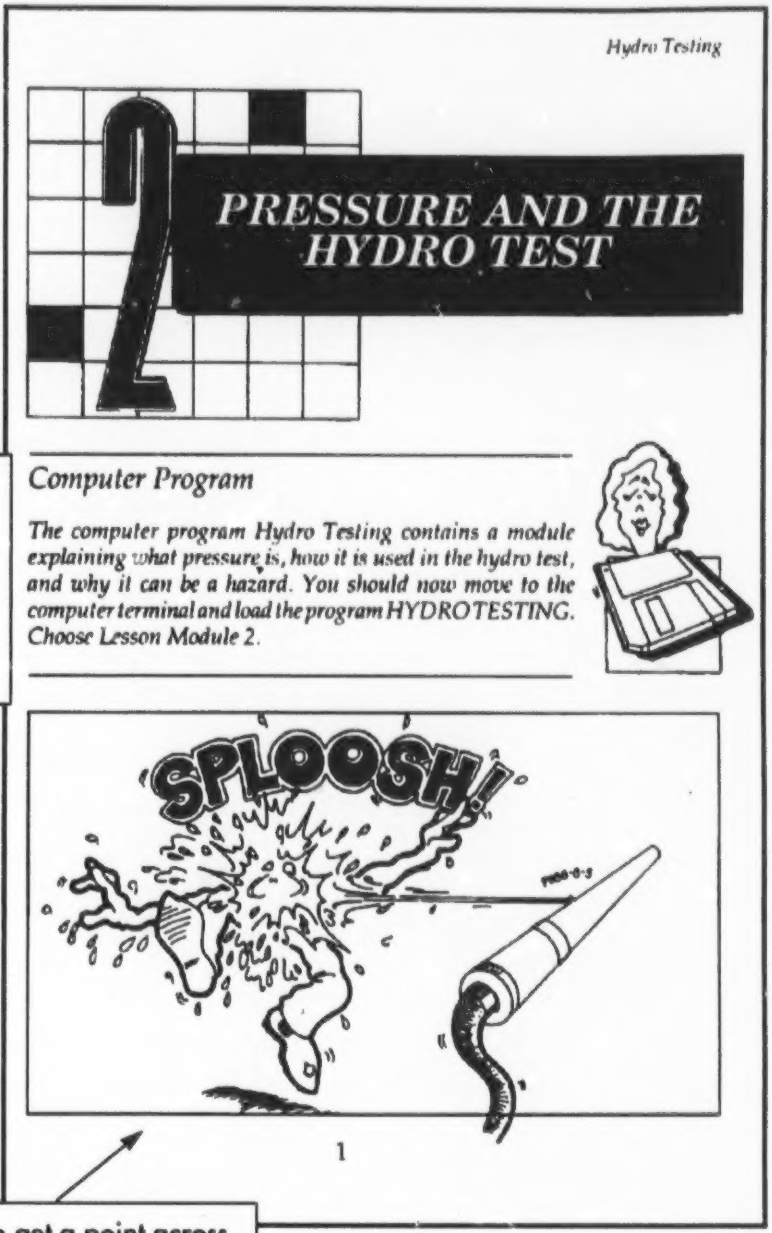
Video icon. Cartoons are used throughout too. Good idea!

Dangerous aspects of the test

From the video you should have a clear overview of the test. Did many aspects of the test seem hazardous? Or did it seem quite safe? In fact, hazards arise at a number of points, as we will soon see. But they all stem from one thing - pressure. The next module, Understanding Pressure, explains why the pressure applied in the hydro test can be extremely dangerous if the test is not carried out correctly.

Necessary information is brought to the attention of the learner.

1



Hydro Testing

2 PRESSURE AND THE HYDRO TEST

Computer Program

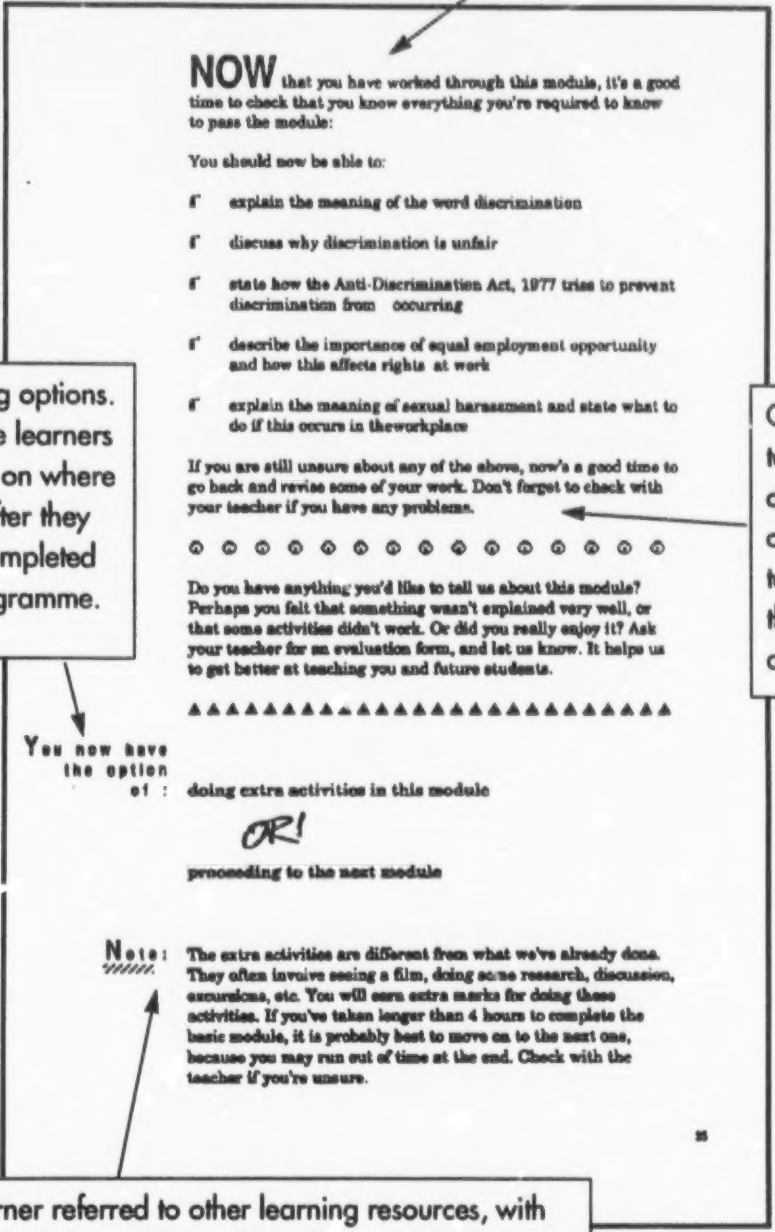
The computer program Hydro Testing contains a module explaining what pressure is, how it is used in the hydro test, and why it can be a hazard. You should now move to the computer terminal and load the program HYDROTESTING. Choose Lesson Module 2.

1

Learner referred to next learning resource; in this case, a computer-based programme.

Use humour to get a point across.

Review section — in this case stated as outcomes of the learning programme.



NOW that you have worked through this module, it's a good time to check that you know everything you're required to know to pass the module:

You should now be able to:

- explain the meaning of the word discrimination
- discuss why discrimination is unfair
- state how the Anti-Discrimination Act, 1977 tries to prevent discrimination from occurring
- describe the importance of equal employment opportunity and how this affects rights at work
- explain the meaning of sexual harassment and state what to do if this occurs in theworkplace

If you are still unsure about any of the above, now's a good time to go back and revise some of your work. Don't forget to check with your teacher if you have any problems.

◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆

Do you have anything you'd like to tell us about this module? Perhaps you felt that something wasn't explained very well, or that some activities didn't work. Or did you really enjoy it? Ask your teacher for an evaluation form, and let us know. It helps us to get better at teaching you and future students.

▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲▲

You now have the option of : doing extra activities in this module

OR!

proceeding to the next module

Note: The extra activities are different from what we've already done. They often involve seeing a film, doing some research, discussion, excursions, etc. You will earn extra marks for doing these activities. If you've taken longer than 4 hours to complete the basic module, it is probably best to move on to the next one, because you may run out of time at the end. Check with the teacher if you're unsure.

25

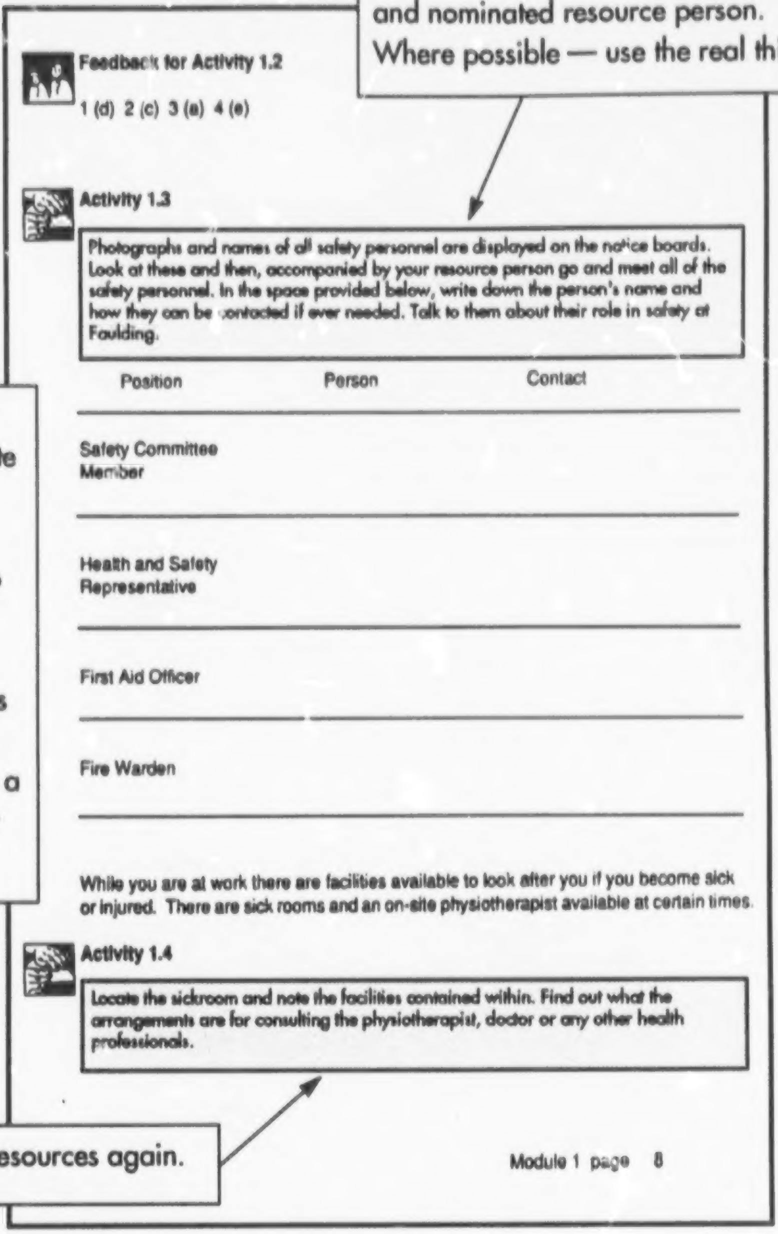
Learning options. Give the learners options on where to go after they have completed the programme.

Chance for learners to go back over some of the programme or consult the teacher/trainer if they are unsure of any of the material.

Learner referred to other learning resources, with an incentive to earn extra marks, or advice to move on if they have taken longer than expected to complete the programme.

Learning activities

Note use of real-life resources — photos and names on notice board, and nominated resource person. Where possible — use the real thing!



Feedback for Activity 1.2

1 (d) 2 (c) 3 (a) 4 (e)

Activity 1.3

Photographs and names of all safety personnel are displayed on the notice boards. Look at these and then, accompanied by your resource person go and meet all of the safety personnel. In the space provided below, write down the person's name and how they can be contacted if ever needed. Talk to them about their role in safety at Faulding.

Position	Person	Contact
Safety Committee Member		
Health and Safety Representative		
First Aid Officer		
Fire Warden		

While you are at work there are facilities available to look after you if you become sick or injured. There are sick rooms and an on-site physiotherapist available at certain times.

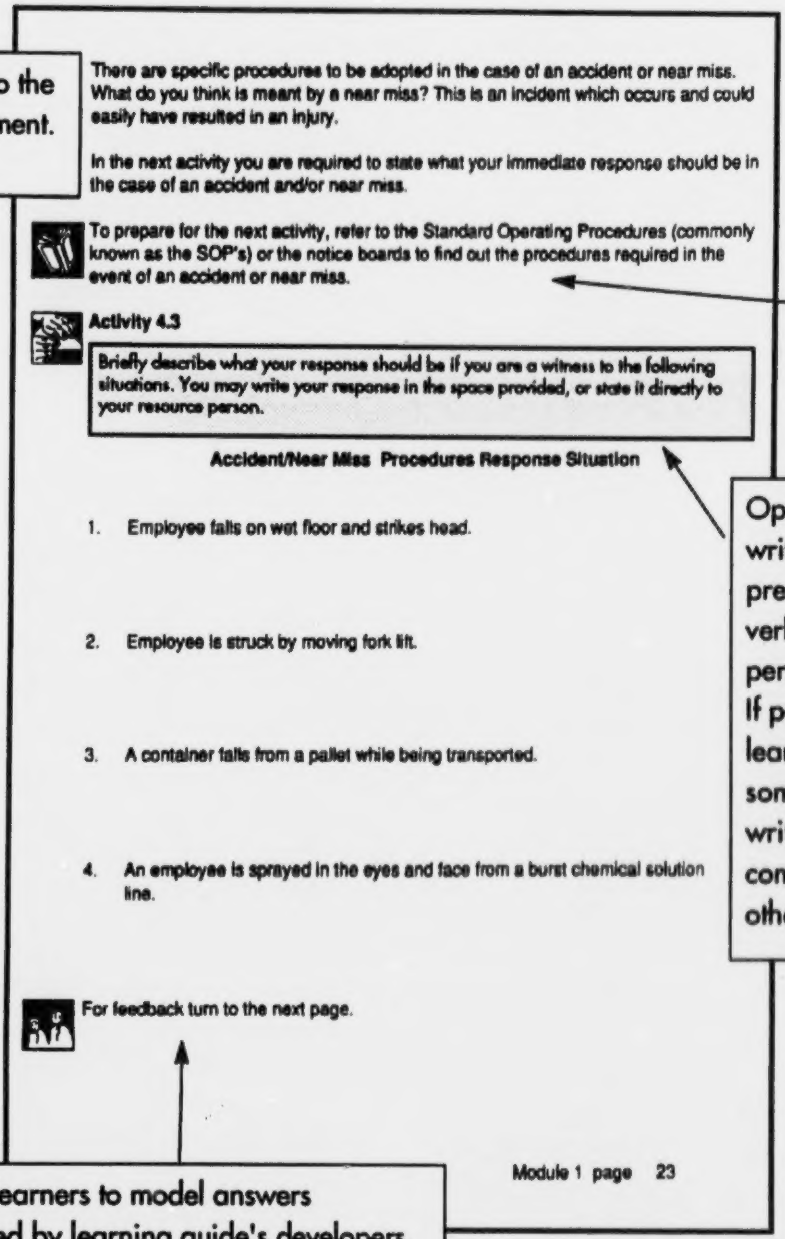
Activity 1.4

Locate the sickroom and note the facilities contained within. Find out what the arrangements are for consulting the physiotherapist, doctor or any other health professionals.

Module 1 page 8

Space provided for learner to write required information. By being written into the programme this type of information is less likely to be lost than if written on a separate sheet or scrap of paper.

Use real-life resources again.



Lead-in to the next segment.

There are specific procedures to be adopted in the case of an accident or near miss. What do you think is meant by a near miss? This is an incident which occurs and could easily have resulted in an injury.

In the next activity you are required to state what your immediate response should be in the case of an accident and/or near miss.

To prepare for the next activity, refer to the Standard Operating Procedures (commonly known as the SOP's) or the notice boards to find out the procedures required in the event of an accident or near miss.

Learners directed to another printed resource within the organisation.

Activity 4.3

Briefly describe what your response should be if you are a witness to the following situations. You may write your response in the space provided, or state it directly to your resource person.

Accident/Near Miss Procedures Response Situation

1. Employee falls on wet floor and strikes head.

2. Employee is struck by moving fork lift.

3. A container falls from a pallet while being transported.

4. An employee is sprayed in the eyes and face from a burst chemical solution line.

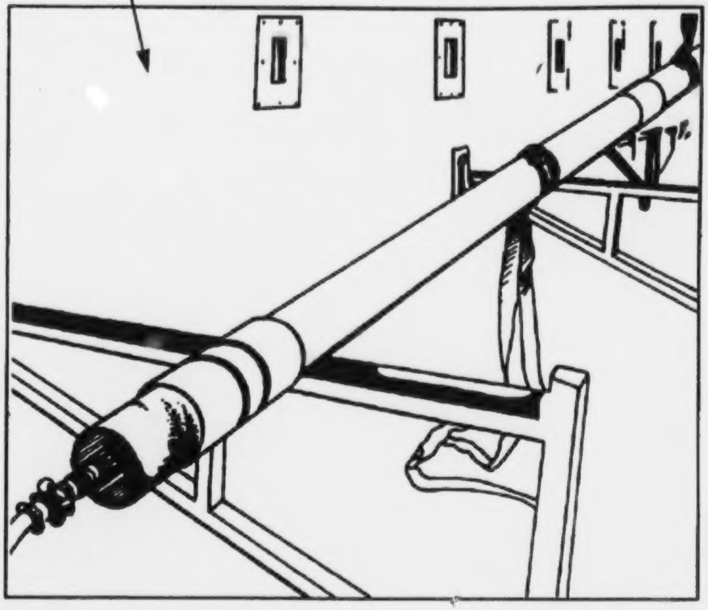
Option given to either write response, or present response verbally to resource person.
If possible give learners alternatives – some may have better written communication skills, others better verbal.

For feedback turn to the next page.

Module 1 page 23

Refers learners to model answers prepared by learning guide's developers.

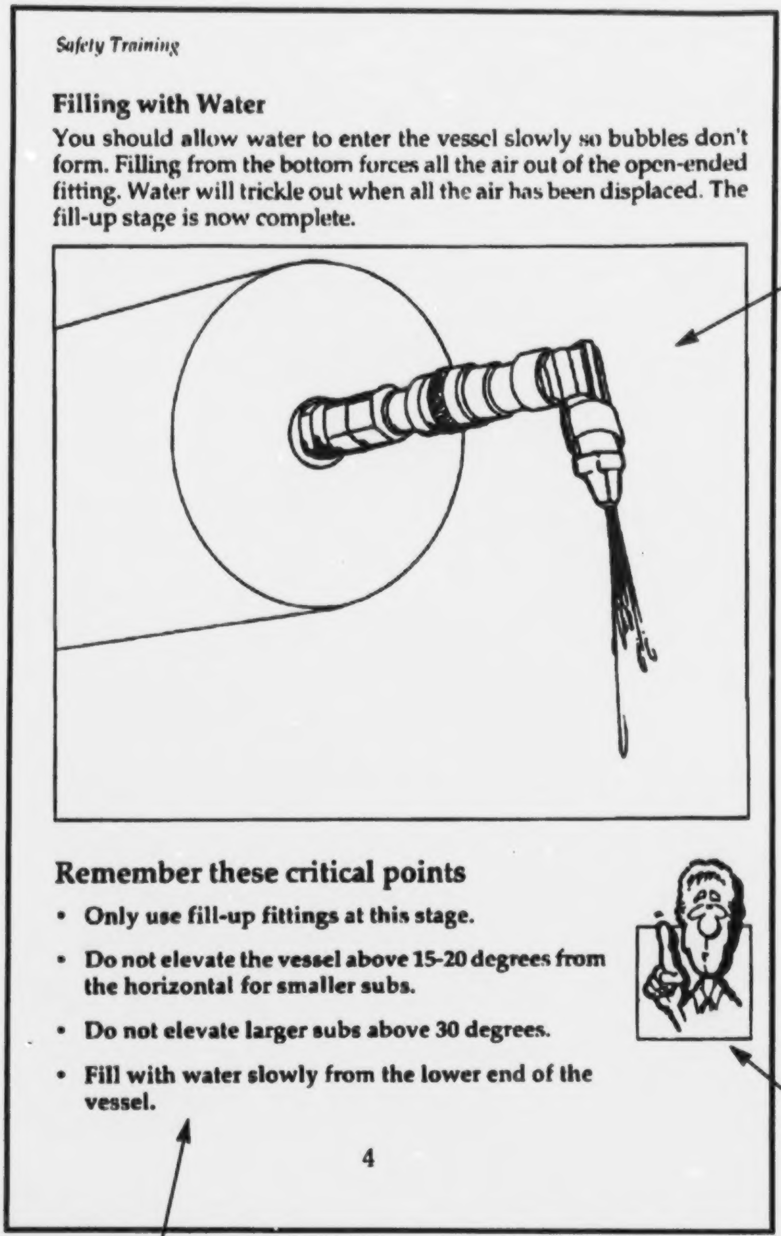
Good use of simple line drawings will aid learner comprehension.



Warning:

Take care to ensure the test sub does not slide off the support racks when in this position.

Any dangerous (or potentially dangerous) aspect should be highlighted. You can't overdo this if there is any chance that the learner may damage equipment or injure themselves.



Safety Training

Filling with Water

You should allow water to enter the vessel slowly so bubbles don't form. Filling from the bottom forces all the air out of the open-ended fitting. Water will trickle out when all the air has been displaced. The fill-up stage is now complete.

Remember these critical points

- **Only use fill-up fittings at this stage.**
- **Do not elevate the vessel above 15-20 degrees from the horizontal for smaller subs.**
- **Do not elevate larger subs above 30 degrees.**
- **Fill with water slowly from the lower end of the vessel.**

4

Again, good use of line drawing.

Again, use of icon.

Major points to be remembered by learner highlighted.

Now that we have finished the fill-up stage, let's stop for a few minutes. Remember, the vessel in the test will soon be put under great pressure. This is why hydro testing is potentially very dangerous.

Before you go on, list four steps so far in the test that will make the test safe.

•

•

•

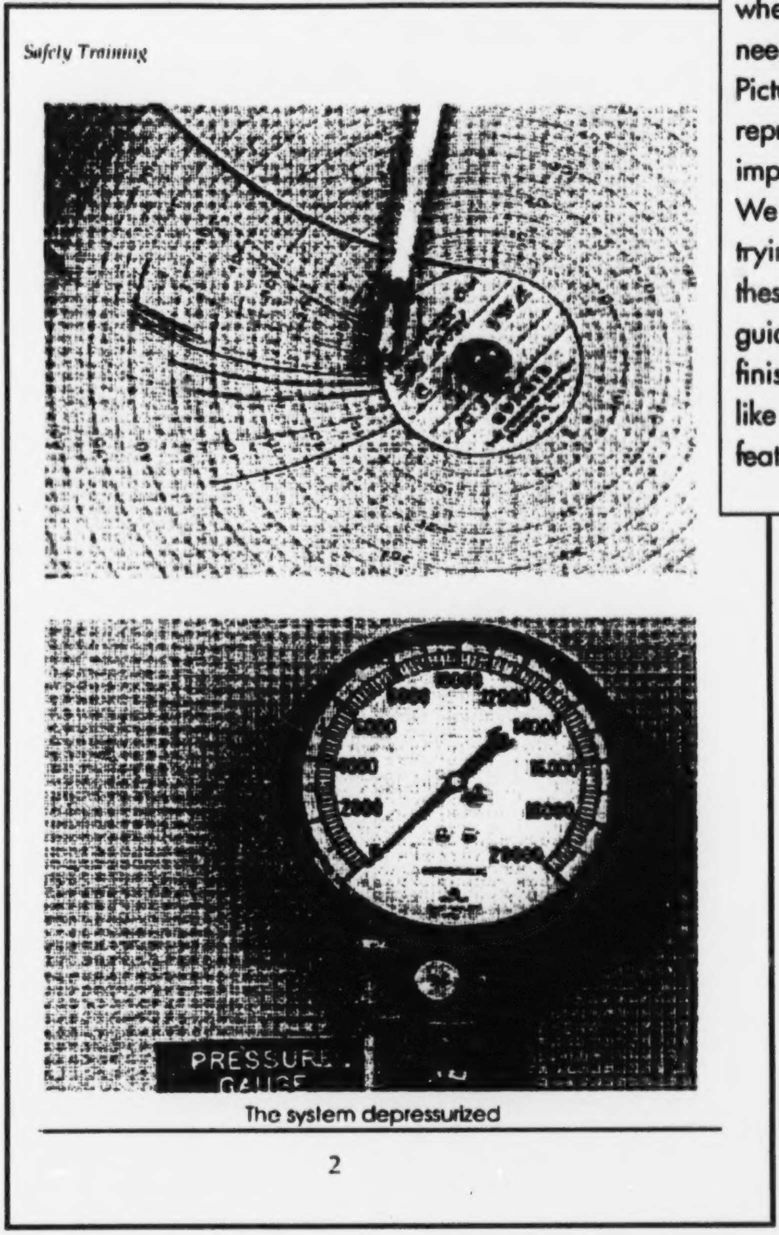
•

Space allocated for learner to review and summarise content.

How did you go? Look at the critical points on Module 3 p.4, Module 4 p.3 and Module 5 p.4. As you read them, think about how each one makes the test safe.

Feedback provided by direction to refer to specific pages in programme.

Photos can be useful where close-up detail needs to be shown. Picture quality & reproduction are very important here. We have lost quality in trying to reproduce these examples in this guide and so what the finished product looks like will be an important feature of your design.



Safety Training

The system depressurized

2

Safety Training

Remember these critical points

Review of main points.

- **Do not enter the test cell until you are sure that the system has been depressurized.**
- **Disassemble the parts in the reverse order to which they were assembled.**
- **Check that you have not damaged any of the parts during the test.**

This is the final stage in the hydro test. All that remains now is for you to complete the computer based test questions before you attempt the test under supervision.

You have now completed this course on hydro testing. Your knowledge of hydro testing will be checked in two ways - by computer-based test questions and by a field activity.

Learner directed to do computer test.

You should now do the computer-based test in the computer program HYDRO TESTING. Select Test Modules 3-8 to do the test.

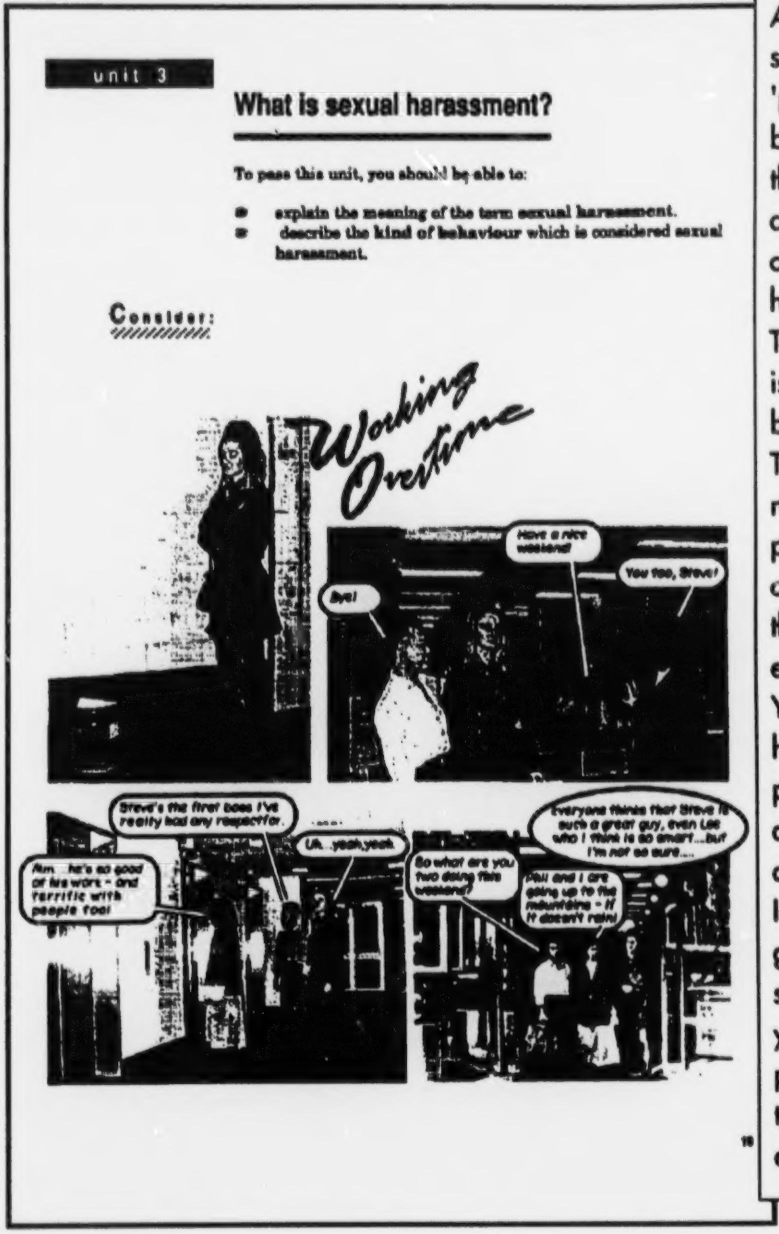
Your field test for this course will be organised by your supervisor. A copy of the Supervisor's checklist for this field activity is at the end of this study guide for your information.

On-the-job assessment — learner directed to contact supervisor.

Further sources of information

- Your supervisor
- Safety Officer - Supply Base

4



unit 3

What is sexual harassment?

To pass this unit, you should be able to:

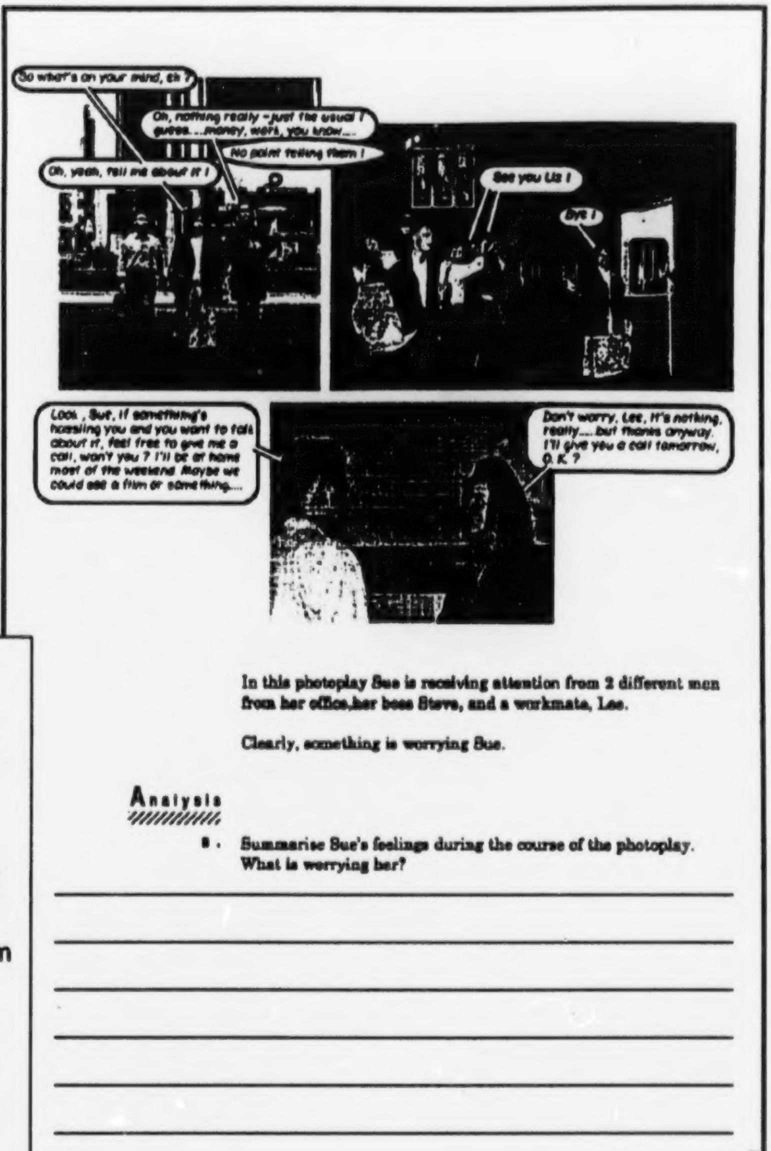
- explain the meaning of the term sexual harassment.
- describe the kind of behaviour which is considered sexual harassment.

Consider:

Working Overtime
Have a nice weekend!
You too, Steve!
Bye!
Steve's the first boss I've really had any respect for.
Uh...yeah,yeah.
Mm...he's so good at his work - and terrific with people too!
Everyone thinks that Steve is such a great guy, even Lee who I think is so smart...but I'm not so sure....
So what are you two doing this weekend?
Phil and I are going up to the mountains - if it doesn't rain!

10

This and the next page are the first and last of a 3 page learning resource.
A photographic sequence or 'photoplay' has been developed by the writers to address the problem of sexual harassment.
There are many issues which could be treated this way.
The comic strip nature of the photoplay requires considerable thought and execution.
You may need to get help from a photographer, actors and possibly a script writer.
In writing learning guides for your subject area, can you can use photoplays or other types of simulations effectively.


So what's on your mind, eh ?
Oh, nothing really - just the usual I guess....money, work, you know....
No point telling them !
Oh, yeah, tell me about it !
See you Liz !
Bye !
Look , Sue, if something's hassling you and you want to talk about it, feel free to give me a call, won't you ? I'll be at home most of the weekend Maybe we could see a film or something....
Don't worry, Lee, it's nothing, really....but thanks anyway. I'll give you a call tomorrow, O.K. ?

In this photoplay Sue is receiving attention from 2 different men from her office,her boss Steve, and a workmate, Lee.

Clearly, something is worrying Sue.

Analysis

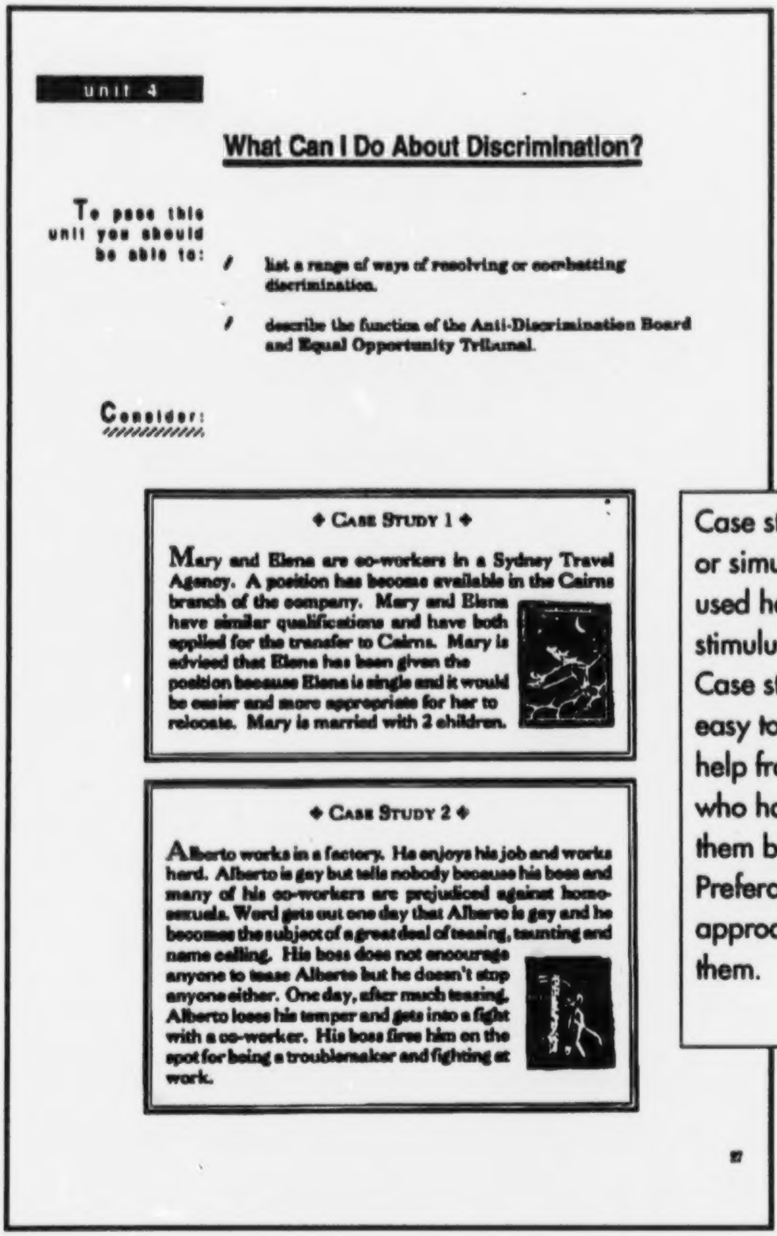
8 . Summarise Sue's feelings during the course of the photoplay. What is worrying her?

21

The photoplay is followed by:

- a learner activity
- immediate feedback
- a summary of the main ideas or issues arising from the topic.

As with the previous example on page 118, the quality of the photographic image is important. Line drawings are a good alternative.



unit 4

What Can I Do About Discrimination?

To pass this unit you should be able to:

- list a range of ways of resolving or combatting discrimination.
- describe the function of the Anti-Discrimination Board and Equal Opportunity Tribunal.

Consider:

◆ CASE STUDY 1 ◆

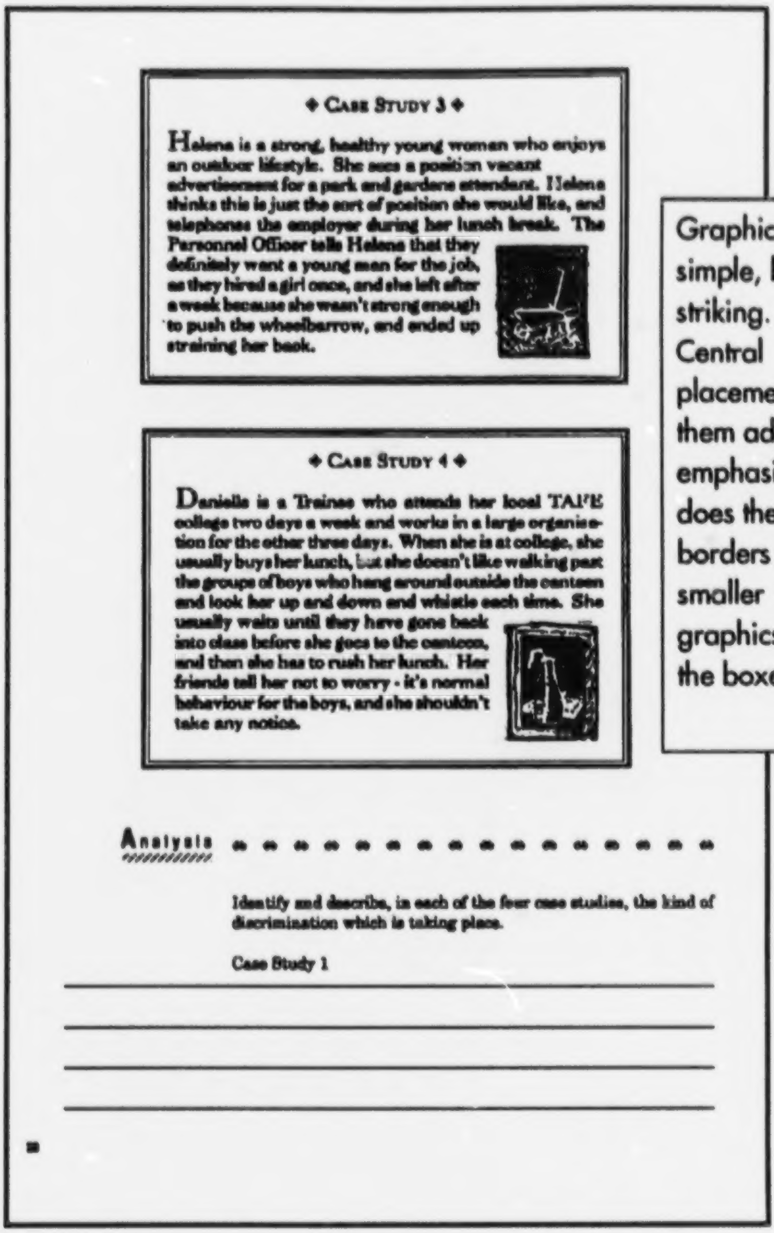
Mary and Elena are co-workers in a Sydney Travel Agency. A position has become available in the Cairns branch of the company. Mary and Elena have similar qualifications and have both applied for the transfer to Cairns. Mary is advised that Elena has been given the position because Elena is single and it would be easier and more appropriate for her to relocate. Mary is married with 2 children.

◆ CASE STUDY 2 ◆

Alberto works in a factory. He enjoys his job and works hard. Alberto is gay but tells nobody because his boss and many of his co-workers are prejudiced against homosexuals. Word gets out one day that Alberto is gay and he becomes the subject of a great deal of teasing, taunting and name calling. His boss does not encourage anyone to tease Alberto but he doesn't stop anyone either. One day, after much teasing, Alberto loses his temper and gets into a fight with a co-worker. His boss fires him on the spot for being a troublemaker and fighting at work.

27

Case studies — real or simulated — are used here as the stimulus for learning. Case studies are not easy to write — get help from colleagues who have written them before. Preferably use a team approach to develop them.



◆ CASE STUDY 3 ◆

Helena is a strong, healthy young woman who enjoys an outdoor lifestyle. She sees a position vacant advertisement for a park and gardens attendant. Helena thinks this is just the sort of position she would like, and telephones the employer during her lunch break. The Personnel Officer tells Helena that they definitely want a young man for the job, as they hired a girl once, and she left after a week because she wasn't strong enough to push the wheelbarrow, and ended up straining her back.

◆ CASE STUDY 4 ◆

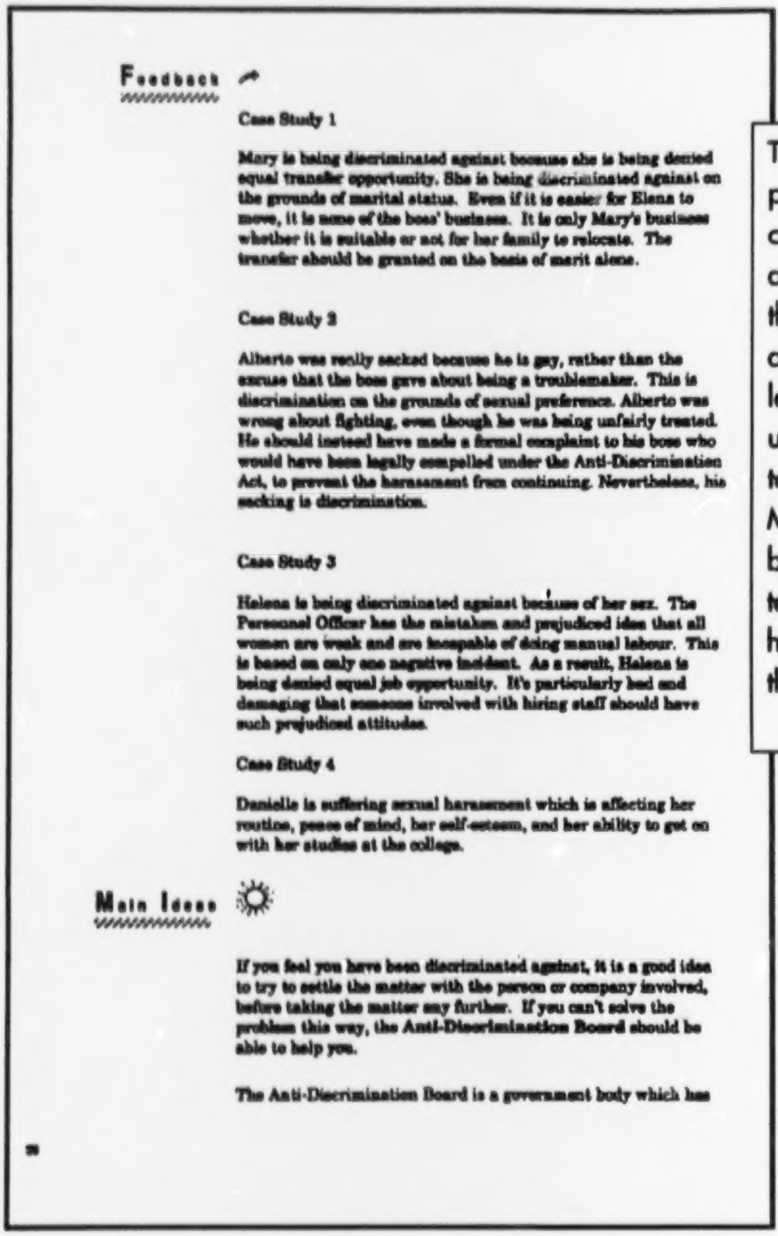
Danielle is a Trainee who attends her local TAFE college two days a week and works in a large organisation for the other three days. When she is at college, she usually buys her lunch, but she doesn't like walking past the groups of boys who hang around outside the canteen and look her up and down and whistle each time. She usually waits until they have gone back into class before she goes to the canteen, and then she has to rush her lunch. Her friends tell her not to worry - it's normal behaviour for the boys, and she shouldn't take any notice.

Analysis

Identify and describe, in each of the four case studies, the kind of discrimination which is taking place.

Case Study 1

Graphics are simple, but striking. Central placement gives them added emphasis, as does the double borders and smaller graphics inside the boxes.



Feedback

Case Study 1

Mary is being discriminated against because she is being denied equal transfer opportunity. She is being discriminated against on the grounds of marital status. Even if it is easier for Elena to move, it is none of the boss' business. It is only Mary's business whether it is suitable or not for her family to relocate. The transfer should be granted on the basis of merit alone.

Case Study 2

Alberto was really sacked because he is gay, rather than the excuse that the boss gave about being a troublemaker. This is discrimination on the grounds of sexual preference. Alberto was wrong about fighting, even though he was being unfairly treated. He should instead have made a formal complaint to his boss who would have been legally compelled under the Anti-Discrimination Act, to prevent the harassment from continuing. Nevertheless, his sacking is discrimination.

Case Study 3

Helena is being discriminated against because of her sex. The Personnel Officer has the mistaken and prejudiced idea that all women are weak and are incapable of doing manual labour. This is based on only one negative incident. As a result, Helena is being denied equal job opportunity. It's particularly bad and damaging that someone involved with hiring staff should have such prejudiced attitudes.

Case Study 4

Danielle is suffering sexual harassment which is affecting her routine, peace of mind, her self-esteem, and her ability to get on with her studies at the college.

Main Ideas

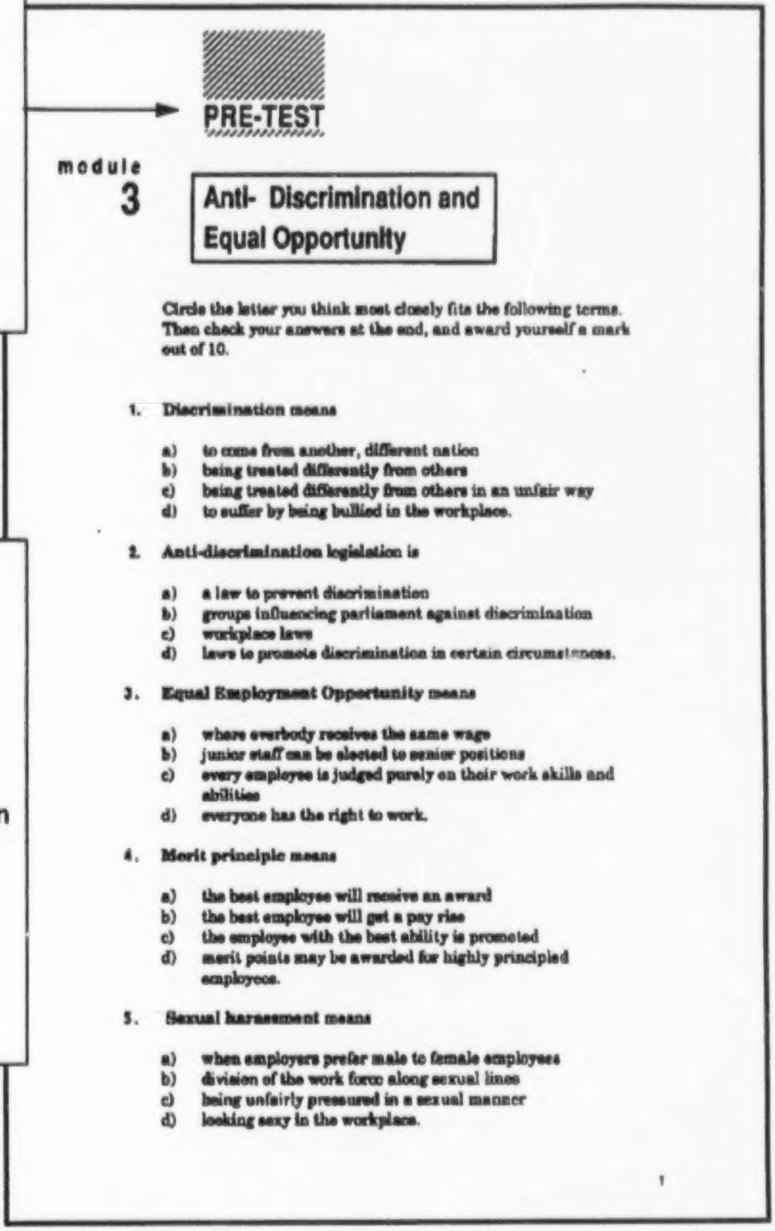
If you feel you have been discriminated against, it is a good idea to try to settle the matter with the person or company involved, before taking the matter any further. If you can't solve the problem this way, the **Anti-Discrimination Board** should be able to help you.

The Anti-Discrimination Board is a government body which has

The feedback provided for the case studies must address the issues the writers believe are crucial to the learner understanding the topic.
Model answers are best written by a team: two (or more) heads are better than one.

Assessment activities

This section of the learning programme allows the learner to attempt an initial test to determine how much, or how little, they need to learn.



PRE-TEST

module
3

Anti- Discrimination and Equal Opportunity

Circle the letter you think most closely fits the following terms. Then check your answers at the end, and award yourself a mark out of 10.

1. **Discrimination means**

   a) to come from another, different nation
   b) being treated differently from others
   c) being treated differently from others in an unfair way
   d) to suffer by being bullied in the workplace.

2. **Anti-discrimination legislation is**

   a) a law to prevent discrimination
   b) groups influencing parliament against discrimination
   c) workplace laws
   d) laws to promote discrimination in certain circumstances.

3. **Equal Employment Opportunity means**

   a) where everbody receives the same wage
   b) junior staff can be elected to senior positions
   c) every employee is judged purely on their work skills and abilities
   d) everyone has the right to work.

4. **Merit principle means**

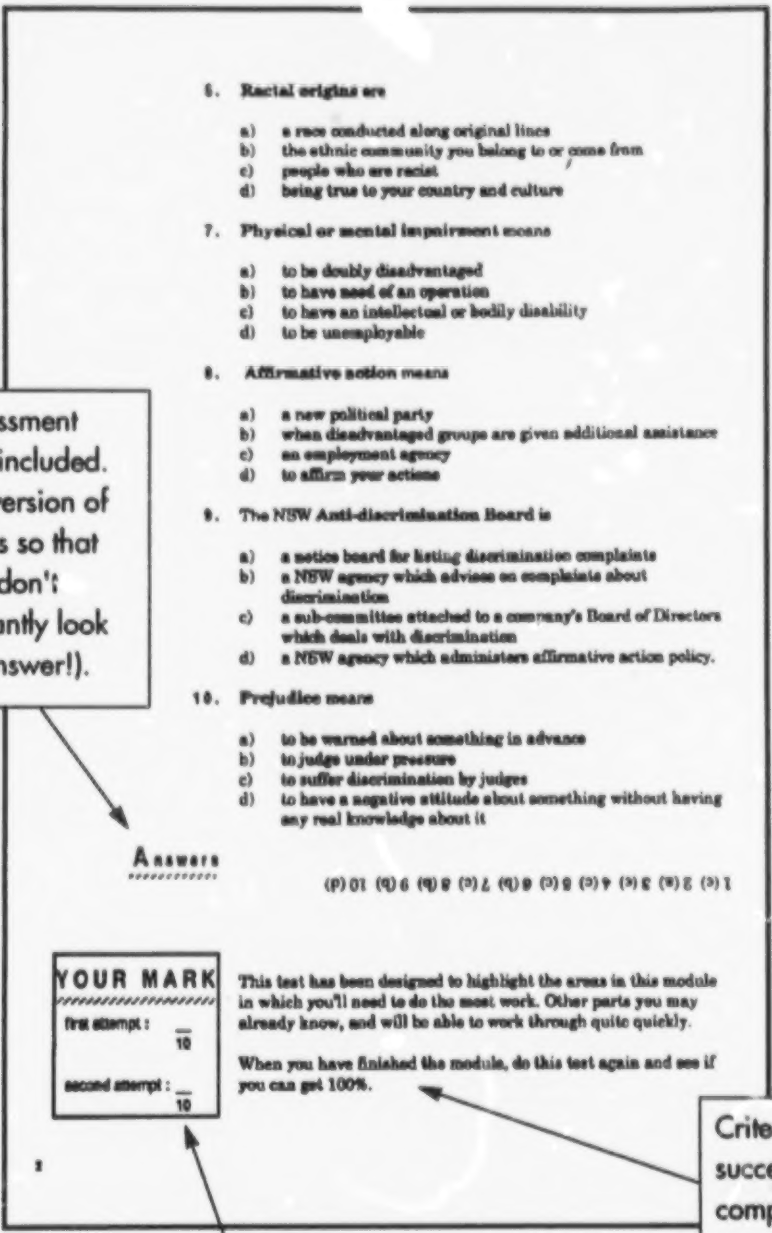
   a) the best employee will receive an award
   b) the best employee will get a pay rise
   c) the employee with the best ability is promoted
   d) merit points may be awarded for highly principled employees.

5. **Sexual harassment means**

   a) when employers prefer male to female employees
   b) division of the work force along sexual lines
   c) being unfairly pressured in a sexual manner
   d) looking sexy in the workplace.

1

Questions are multiple-choice type.
Other types of assessment activities could be used, depending on learning outcomes of the guide.



6. **Racial origins are**

   a) a race conducted along original lines
   b) the ethnic community you belong to or come from
   c) people who are racist
   d) being true to your country and culture

7. **Physical or mental impairment means**

   a) to be doubly disadvantaged
   b) to have need of an operation
   c) to have an intellectual or bodily disability
   d) to be unemployable

8. **Affirmative action means**

   a) a new political party
   b) when disadvantaged groups are given additional assistance
   c) an employment agency
   d) to affirm your actions

9. **The NSW Anti-discrimination Board is**

   a) a notice board for listing discrimination complaints
   b) a NSW agency which advises on complaints about discrimination
   c) a sub-committee attached to a company's Board of Directors which deals with discrimination
   d) a NSW agency which administers affirmative action policy.

10. **Prejudice means**

   a) to be warned about something in advance
   b) to judge under pressure
   c) to suffer discrimination by judges
   d) to have a negative attitude about something without having any real knowledge about it

Answers

1 (c) 2 (a) 3 (c) 4 (c) 5 (c) 6 (b) 7 (c) 8 (b) 9 (b) 10 (d)

YOUR MARK

first attempt : __/10

second attempt : __/10

This test has been designed to highlight the areas in this module in which you'll need to do the most work. Other parts you may already know, and will be able to work through quite quickly.

When you have finished the module, do this test again and see if you can get 100%.

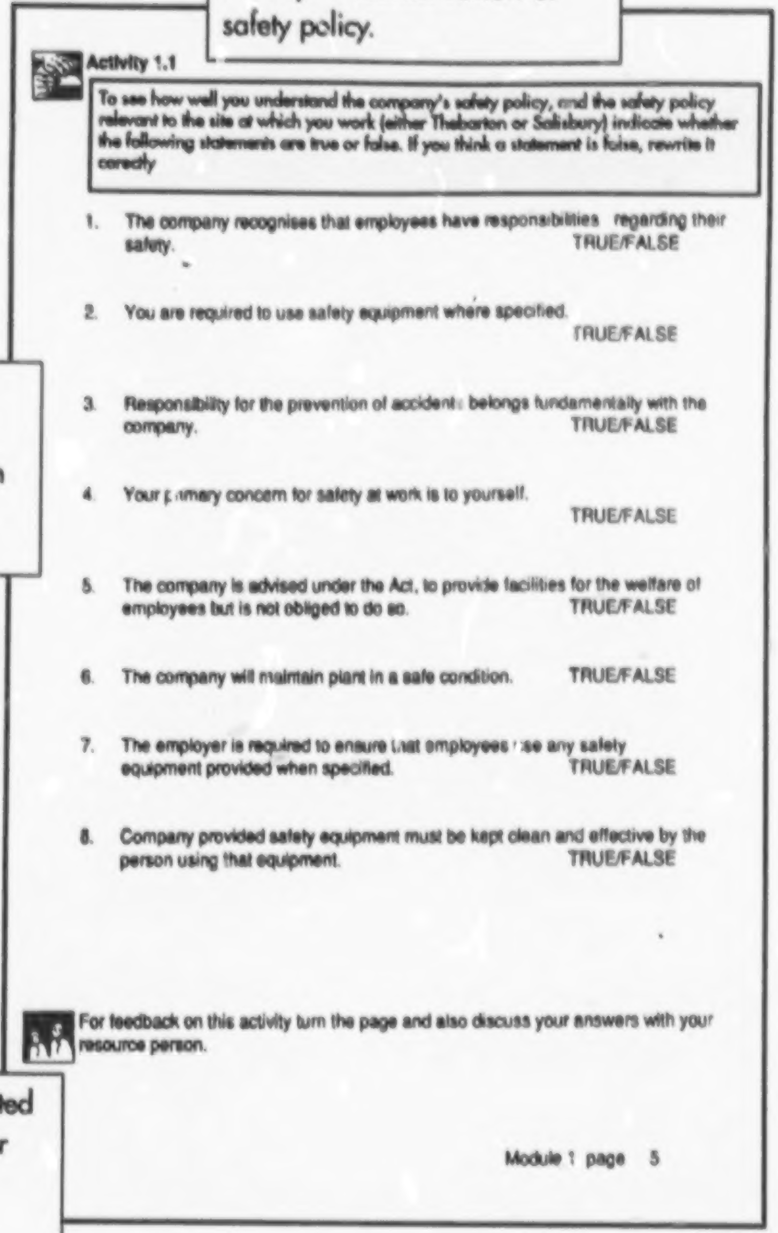
2

Self-assessment answers included. (Note inversion of responses so that learners don't inadvertantly look for the answer!).

Criteria for successful completion of programme given here.

Learners can score test to show degree of learning accomplished.

Activity — learner review of safety policy.



Activity 1.1

To see how well you understand the company's safety policy, and the safety policy relevant to the site at which you work (either Thebarton or Salisbury) indicate whether the following statements are true or false. If you think a statement is false, rewrite it corectly

1. The company recognises that employees have responsibilities regarding their safety. TRUE/FALSE
2. You are required to use safety equipment where specified. TRUE/FALSE
3. Responsibility for the prevention of accidents belongs fundamentally with the company. TRUE/FALSE
4. Your primary concern for safety at work is to yourself. TRUE/FALSE
5. The company is advised under the Act, to provide facilities for the welfare of employees but is not obliged to do so. TRUE/FALSE
6. The company will maintain plant in a safe condition. TRUE/FALSE
7. The employer is required to ensure that employees use any safety equipment provided when specified. TRUE/FALSE
8. Company provided safety equipment must be kept clean and effective by the person using that equipment. TRUE/FALSE

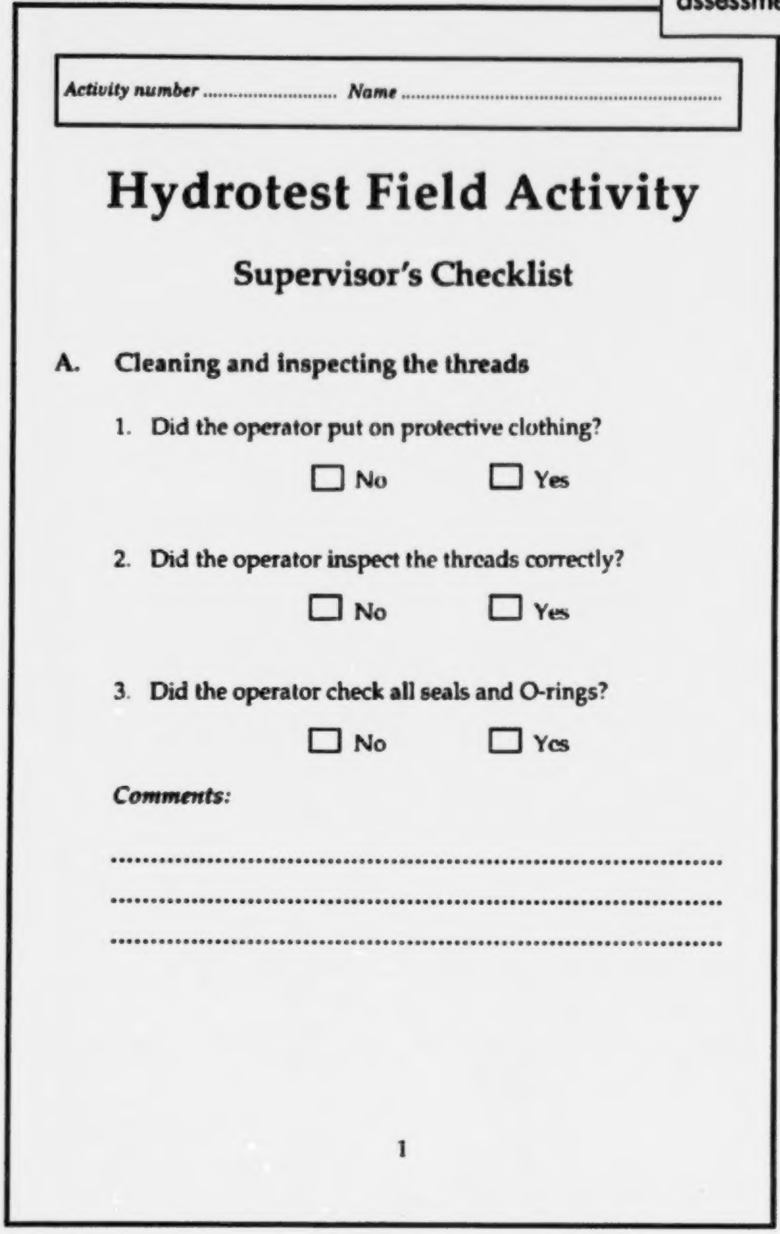
For feedback on this activity turn the page and also discuss your answers with your resource person.

Module 1 page 5

Use of true/false questions. Appropriate given the learning task.

Learner directed to answers for immediate feedback.

This and the next page are the first two pages of ten page supervisor's checklist from on-the-job assessment.



Activity number .... *Name* ....

Hydrotest Field Activity

Supervisor's Checklist

A. Cleaning and inspecting the threads

1. Did the operator put on protective clothing?

☐ No ☐ Yes

2. Did the operator inspect the threads correctly?

☐ No ☐ Yes

3. Did the operator check all seals and O-rings?

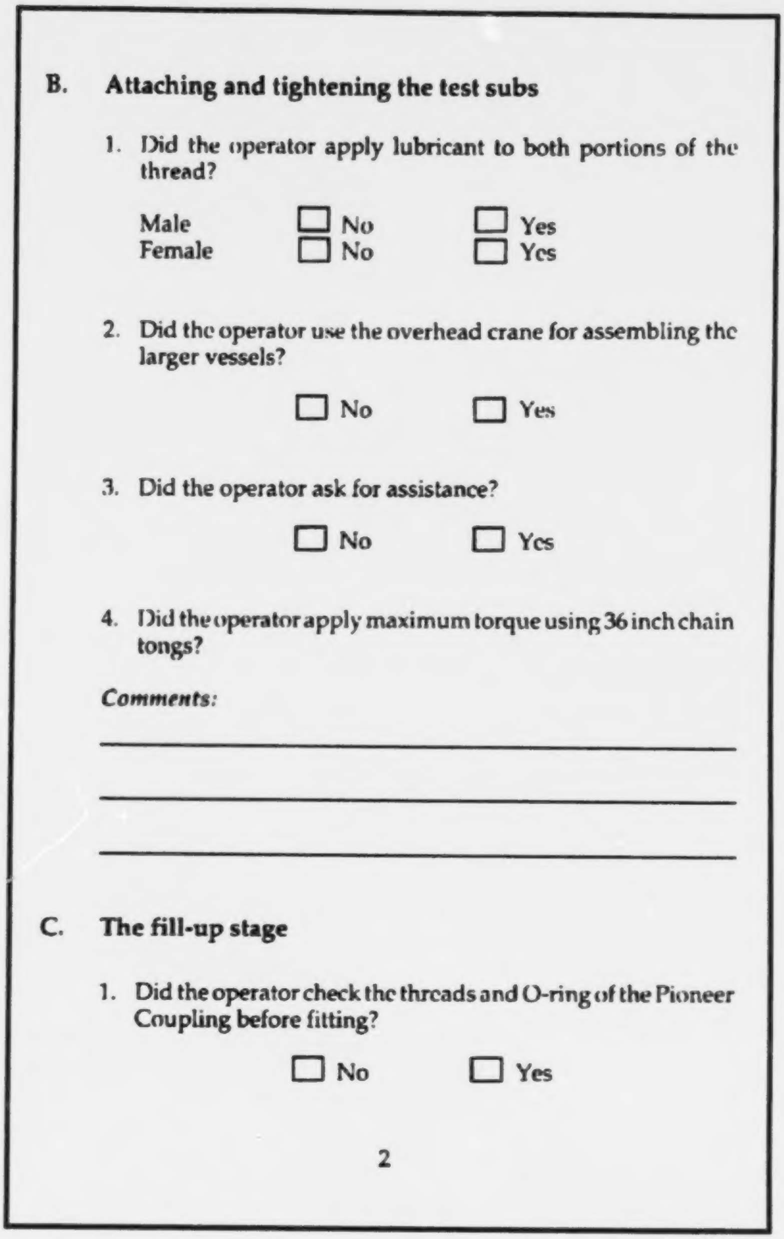
☐ No ☐ Yes

Comments:

....

....

....



B. Attaching and tightening the test subs

1. Did the operator apply lubricant to both portions of the thread?

   Male ☐ No ☐ Yes
   Female ☐ No ☐ Yes

2. Did the operator use the overhead crane for assembling the larger vessels?

   ☐ No ☐ Yes

3. Did the operator ask for assistance?

   ☐ No ☐ Yes

4. Did the operator apply maximum torque using 36 inch chain tongs?

Comments:

____

____

____

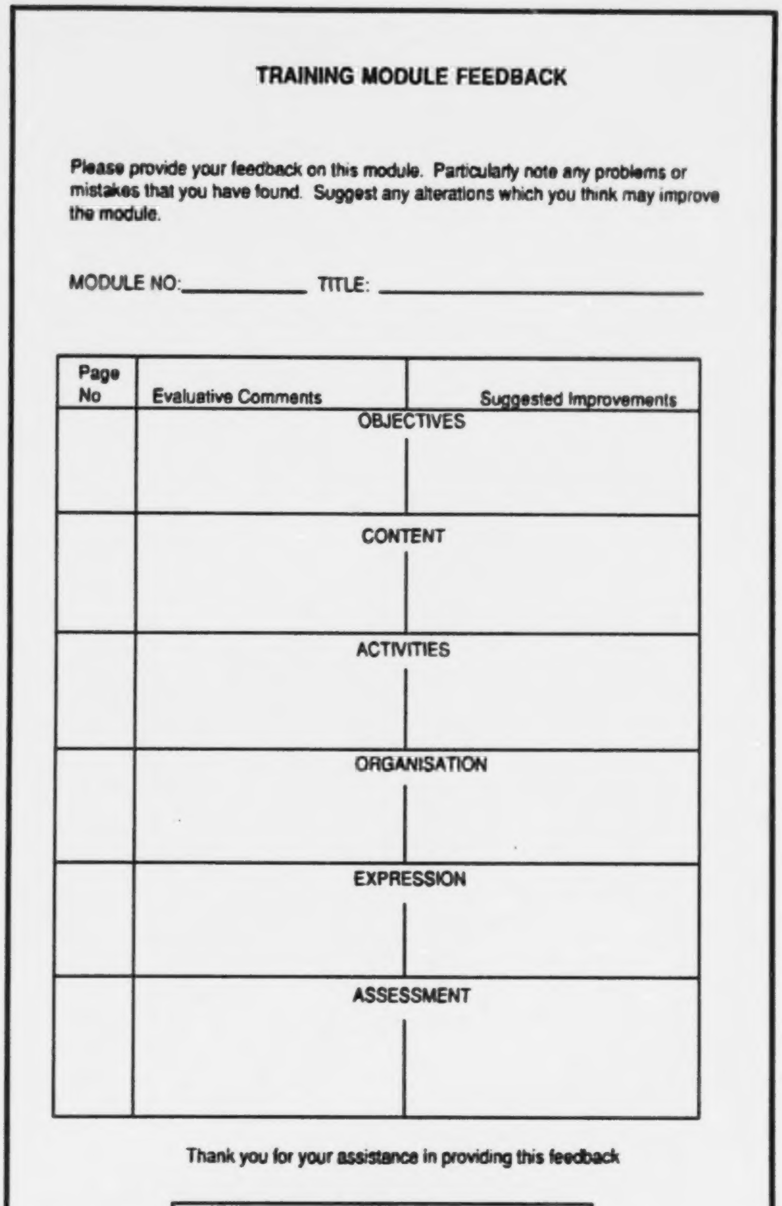
C. The fill-up stage

1. Did the operator check the threads and O-ring of the Pioneer Coupling before fitting?

   ☐ No ☐ Yes

2

Feedback to developer



TRAINING MODULE FEEDBACK

Please provide your feedback on this module. Particularly note any problems or mistakes that you have found. Suggest any alterations which you think may improve the module.

MODULE NO:____________ TITLE: ______________________________

Page No	Evaluative Comments	Suggested Improvements
	OBJECTIVES	
	CONTENT	
	ACTIVITIES	
	ORGANISATION	
	EXPRESSION	
	ASSESSMENT	

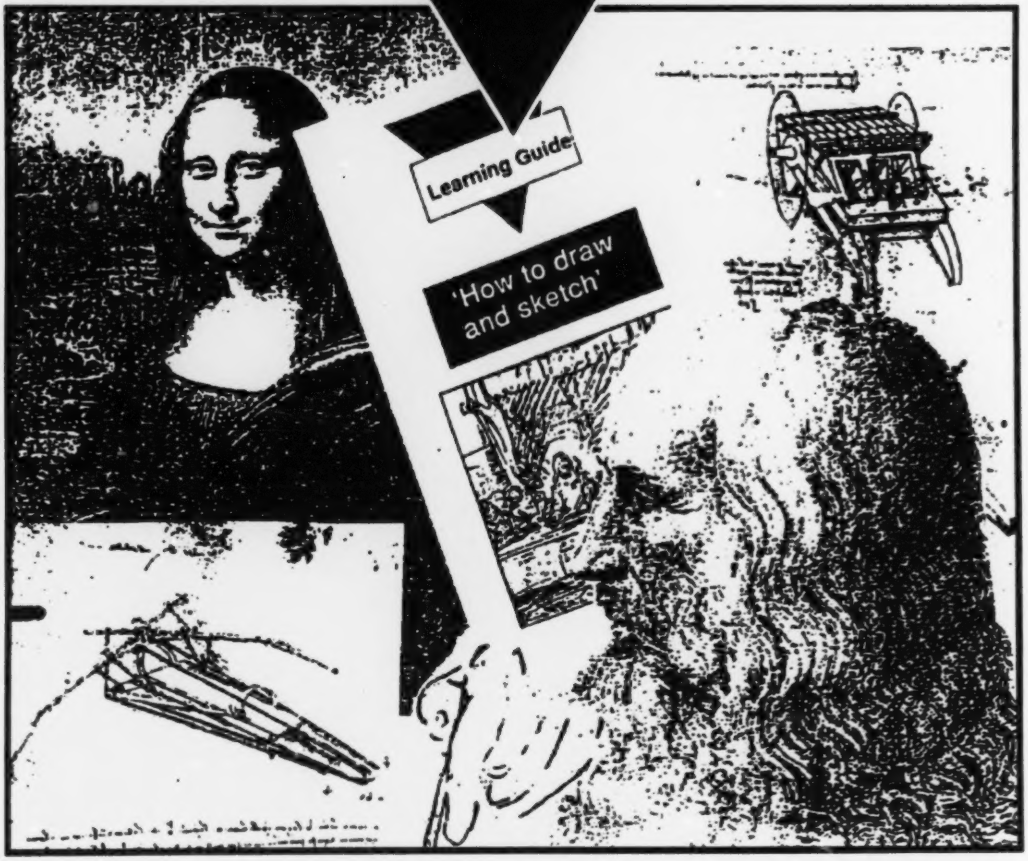
Thank you for your assistance in providing this feedback

One style of feedback sheet for the learner to complete.
Keep them simple!

Australian Committee on
TAFE Curriculum

Learning guide number 1

How to write a learning guide


Learning Guide
'How to draw and sketch'

Peter Bruhn and Hugh Guthrie

TAFE
TAFE NATIONAL CENTRE FOR RESEARCH AND DEVELOPMENT LTD.

© TAFE National Centre for Research and Development Ltd., 1991

A.C.N. 007 967 311

Single copies of this learning guide may be made by its users without restriction

ISBN 0 86397 226 8 (Hard copy)
TD/TNC 27.03

Artwork and design: Bain Middleton

Word-processing: Wendy Holland

Published by:
TAFE National Centre for Research and Development Ltd.,
252 Kensington Road,
LEABROOK SA 5068

Printed by A. CAUDELL,
Government Printer, South Australia.

Contents

Introduction 1
Learning outcomes 2
Pre-requisites 4
Intended audience 4
Resources 5
Key to symbols 5
Learning activities 6
- **Activity 1 —** Stating the problem 6
- **Activity 2 —** Finding and evaluating resources 6
- **Activity 3 —** Forming a team 7
- **Activity 4 —** Writing the guide — getting started 7
- **Activity 5 —** Writing the guide — audiences, pre-requisites and resources 8
- **Activity 6 —** Writing the guide — producing the learning activities 8
- **Activity 7 —** Writing the guide — providing feedback 9
- **Activity 8 —** Writing the guide — reviews and summaries 9
- **Activity 9 —** Writing the guide — the final assessment 9
- **Activity 10 —** Writing the guide — the glossary 10
- **Activity 11 —** Writing the guide — references and further reading 10
- **Activity 12 —** Writing the guide — bringing it all together 10

Review 11
Final assessment 12
Further reading 13

Introduction

This learning guide is designed to help you write your own guides for use in education or training.

Learning guides are structured booklets designed to direct a learner through a series of learning activities, and to a range of resources, to achieve industry specified competencies or learning outcomes.

This learning guide will guide you through the relevant sections of the manual entitled *Designing learning guides for TAFE and industry* by Peter Bruhn and Hugh Guthrie. You will work with this text and undertake specified activities which will help you gain the knowledge and skills to be able to produce quality learning guides and programmes. On completing each activity there will be a self-check section which will provide you with the necessary feedback.

To meet the learning outcomes of this guide you will need to set aside about 15-20 hours (i.e. 2-3 working days) to complete the learning activities and undertake the final assessment. (This may be spread over a number of weeks however.)

Learning outcomes

On successful completion of the learning programme, you will be able to:

Performance:

Write a learning guide, of appropriate length, for an identified education or training need.

Conditions:

With the aid of the publication *Designing learning guides for TAFE and industry* (Bruhn and Guthrie), access to suitable resource people (e.g. training consultants, instructional designers, graphic designers, etc.) and the necessary equipment and materials.

Standards:

The learning guide must:

- be written at a level, and in a style, appropriate for the intended audience(s).
- contain all the essential elements of a learning guide (e.g. introduction, learning outcomes, activities, feedback, reviews, final assessment, etc.).
- contain a mixture of text and graphics.
- be consistent with the presentation guidelines outlined in the accompanying manual.
- be free of spelling and grammatical errors.
- have a cover which easily identifies the topic, organisation and series number (if appropriate).
- be in a format suitable for its intended use.
- be bound and packaged appropriately.

To achieve the learning outcome you will need to:

- identify the training need or problem and write a brief synopsis about it.
- produce a brief description of the intended users.
- establish a design team to assist you with developing the learning guide.
- produce a cover, title and contents pages.
- write the introduction and learning outcomes statements.
- identify any pre-requisite knowledge and skills needed by the learner before undertaking the learning programme.
- select and evaluate learning resources and produce evaluation records.
- list all resources your learner will need to complete the learning programme.
- design learning activities to allow your learners to use and learn from chosen resources.
- write self-assessment and feedback sections.
- produce reviews or summaries.
- produce a final assessment section to assess your learner's performance against the stated learning outcome(s).
- write a further reading or references section.

Pre-Requisites

No previous experience writing learning guides is required.

However, as a teacher/trainer/instructor you will be expected to have an understanding of how adults learn, teaching strategies and methods, assessment and resource-based learning.

If you haven't had much experience in producing learning resources before you should read Part 1 of Bruhn and Guthrie. (The book on which this learning guide is based.) This will provide some of the background you may need. Appendix A of Bruhn and Guthrie may also be helpful.

Intended audience

- TAFE teachers who need to write education and training programmes.
- Trainers and instructors in industry.
- Supervisors with a significant training role within their organisation.

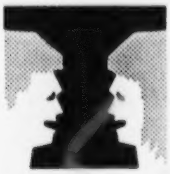
Resources

To use this learning guide you will need to have access to:

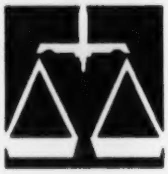
- the publication entitled *Designing learning guides for TAFE and industry* written by Peter Bruhn and Hugh Guthrie. This is referred to as 'the manual' in the rest of this learning guide.
- any necessary resource people, such as subject matter experts, industry trainers, instructional designers, librarians, graphic artists, photographers, word processors, etc.
- a computer to allow you to produce drafts and final copy of the text and graphics for the learning guide.
- a library or other facilities (such as a learning resource centre), especially if you have plans to obtain, evaluate or develop further learning resources.

Key to symbols

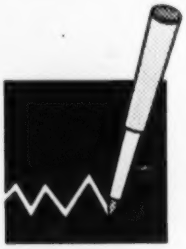
These symbols are located on the left hand side of the page. They indicate an action which should be taken at a particular stage of the learning guide.



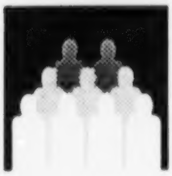
discuss



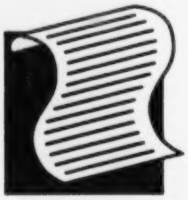
evaluate



write



meet



list

Learning activities

Activity 1 - Stating the problem

Identify what it is you want the learning guide to achieve.

Read pp. 25-26 of the manual. **Write a statement** of the problem or identified need and compare it with the one presented on p.26. (Your statement may be shorter, but should not be any longer than the example).

Obtain feedback from your colleagues (or members of your design team if you have decided to form one at this stage. See pages 33-34 of the manual and Activity 3 in this guide) and see if they agree with the statement. You may call a meeting to do this or just circulate your statement. Alternatively you could circulate the statement AND THEN call a meeting. Amend the statement as necessary.

Activity 2 - Finding and evaluating resources

Having identified what the guide is going to do, you will now need to investigate what learning resources are available and evaluate their suitability for inclusion in your learning guide.

Read pp. 27-28. Produce a brief proposal on how you plan to locate learning resources. Have a colleague critique the process. Next (if you wish) locate and list resources which appear relevant to the topic covered by your learning guide. Obtain copies of resources if possible.

Read pp. 29-32 of the manual. Locate and select at least two potential learning resources. Using the evaluation checklist write an evaluation report for each. (Use the example on p.32 as a guide.) You may wish to include other items on the evaluation record, depending on your own requirements. The checklist on pp.30-31 may provide inspiration!

Show the evaluations to an appropriate colleague for feedback. (This person could be a curriculum or training officer - or an instructional designer.)

Activity 3 - Forming a team

From within (or even possibly outside!) your organisation, establish a small team to help you write the learning guide. (You may have formed such a team already during Activity 1.) Determine where you believe you need help. Is it with design? Content?

Read pp. 33-34 of the manual. **Produce a list** which identifies who the team members are, where they are located and what their respective responsibilities will be.

Send the list to each member of the team and call a meeting to discuss time frames, cost, proposed format, etc. Document these and decide who will take on the co-ordinating role. (To get most out of this and later activities it would be you!)

Activity 4 - Writing the guide - getting started

You can now start writing your learning guide. Pages 35-71 of the manual provide detailed information on the parts of the learning guide. More detailed material is available in the 3 references listed at the end of this guide. They will be particularly useful in this activity and in activities 5-10. Borrow these from a library or resource centre if you can. You may wish to purchase one or more of them after you have completed this package.

Read pp. 35-36 to obtain an overview of the guide. At this stage make some notes (and discuss with colleagues or your team the sorts of sections which your guide will need to contain).

Next **read pp. 43-52** of the manual which covers writing your **introduction** and **learning outcomes** sections. (The earlier sections on cover, title and contents pages will be dealt with later.) These first two sections, especially the learning outcomes, are the basis of the whole learning guide and you should spend some time working through this activity to make sure your statements are clear and reflect what you want the learner to achieve when they have completed the guide.

You may need to revise the learning outcomes in the light of Activities 7 and 9. An alternative way of doing things is to attempt this activity, then do Activities 7 and 9 straight away to help you to refine the learning outcomes and assessment processes.

It is important that you receive as much feedback as possible during this activity. Consult frequently with appropriate team member(s) or colleagues to ensure that these sections are written as precisely as you can.

Activity 5 - Writing the guide - audiences, pre-requisites and resources

Read pp.52-55 of the manual and then **write** the sections relating to pre-requisites, intended audiences and resources.

Show your drafts to the appropriate team member(s) or colleagues who will provide you with the necessary feedback. Change as appropriate.

Activity 6 - Writing the guide - producing the learning activities

This activity will constitute the major learning activity of the guide. It requires you to design the learning activities which link the learner to the resources.

First, **read pp. 56-61** of the manual. Second, don't try to write this section alone, get a colleague, an industry trainer or instructional designer to help you plan out the learning activities. Third, **look at the various activities incorporated into the learning guide examples** provided at the end of the manual, to assist you with this activity.

List alternative approaches that could be used.

Share the outcomes of this collaboration with other colleagues and team members. Ask them to act as 'critical friends' and to provide you with comments on the alternative learning activities you propose for the guide.

Choose the most suitable range of activities for your purpose and list these.

Finally you need to put the activities into a logical sequence. **Produce a rough mock-up of this section of the guide.** The whole guide will be refined later (see Activity 12).

Incorporate or develop the resources evaluated in Activity 2 as appropriate. Develop new resources if necessary (refer to Activity 12 and pages 73-74 if appropriate). Make sure that the resources section of the guide (discussed in Activity 5) lists where and how any necessary resources are available.

Activity 7 - Writing the guide - providing feedback

Once the team is in agreement with the planned activities you will need to write the self-help questions and answers. This provides the feedback loop so that the learner can find out how he or she is doing after the completion of a prescribed activity.

Read pp. 61-64 of the manual. **Refer to the examples of learning guides at the end of the manual** and see how other guide writers have incorporated the self-help questions and answers into their guides. **Write your own self-assessment questions and answers.** (**Note:** Feedback can be provided by resource people available to the learner rather than written into the guide.)

Consult with the appropriate team member or colleague to comment on your proposed learner feedback mechanisms.

Activity 8 - Writing the guide - reviews and summaries

It is recommended that you write a brief review or summary section for your learners.

Read pp. 64-67 of the manual about writing reviews. Alternatively you can design a learning activity so that the learners have to produce their own review. **Write** the review section.

Activity 9 - Writing the guide - the final assessment

Read p. 68 of the manual and **refer to the final assessment sections** presented in the examples of learning guides at the end of the manual. Look at the checklist that has been developed to assess if the learner has achieved the learning outcome(s).

You must now **write** the section which directs the learner to **undertake a final assessment** (or competency assessment) based on the learning outcome(s) you wrote earlier (see Activity 4).

Use your industry trainer or a person with a background in assessment to **evaluate or critique** your proposed final assessment for the learning guide.

Activity 10 - Writing the guide - the glossary

This activity is optional. If you are writing a learning guide which contains terms unfamiliar to the learner you may need to write a glossary. If you need to include one in your guide, **read pp. 68-69** of the manual. Use the example on page 69 as a guide for producing your own glossary.

Activity 11 - Writing the guide - references and further reading

The final section of a learning guide is the references or further reading section. **Read pp. 70-71** of the manual. **Produce your own annotated list**. Get a team member to check it. This section is useful for those learners who wish to extend their background knowledge and skills.

Activity 12 - Writing the guide - bringing it all together

This final activity should be a team effort. This is the stage where the guide can be assembled and the cover, title and contents pages produced. (**Read pp. 36-42** of the manual). If appropriate, consult with a graphic designer at this stage about the final look of the guide. For your own information, **read pp. 75-87** regarding presentation guidelines for learning guide writers.

If you need to include extra information sheets, etc., refer to **pp. 73-74** on writing supplementary materials. By the end of this activity the package should be complete. Make sure you get some comments on it at this stage from a range of experts: it's best if they have had nothing to do with its development so far.

Review

Now that you have worked through the programme, let us review the major steps in writing a learning guide:

1. You identified the education/training need or problem for which a learning guide will need to be developed.
2. You identified what learning resources were available and produced a written evaluation summary of these.
3. You established your learning guide design team.
4. You methodically went about preparing each section of the learning guide, in consultation with appropriate team members or colleagues.
5. You incorporated optional sections, such as a glossary or supplementary materials, into your learning guide.
6. When all the sections had been written and approved by the team, the team's designer assisted you and the other members in producing the final product. This included the cover, title and contents pages, packaging and the overall look of the guide. The completed package was shown to other experts for comment.

Final assessment

The final assessment of this programme is based on the learning outcomes detailed on pages 2 and 3 of the guide.

You will be required to submit your final learning guide to an assessment panel who have had no previous involvement with its development.

This assessment panel will be chosen by a senior member of your organisation and may comprise:

- a member of staff with expertise in the content area covered by the learning guide
- a curriculum or training specialist
- an instructional designer or educational technologist
- a graphic designer
- a person from another educational institution or organisation.

The criteria for determining your successful completion of the programme is listed under the learning outcomes standards on page 2 of this guide.

Further reading

- Hartley, James. (1985) *Designing instructional text*. 2nd edition. Kogan Page, London.

  This book has become one of the standard references on designing and writing instructional materials. It emphasises layout and the visual presentation of text and diagrams. It also contains current research on typography and its use in instructional materials. Highly recommended.

- Heinich, Robert, Molenda, Michael and Russell, James. (1982) *Instructional media and the new technologies of instruction*. John Wiley and Sons.

  A well-presented book on the design and use of the full range of instructional media. Has 13 appraisal checklists on various media. These checklists are useful for evaluating learning resources.

- Rowntree, Derek. (1986) *Teaching through self-instruction. A practical handbook for course developers*. Kogan Page, London.

  If you are serious about writing learning guides you should purchase this book; it's one of our favourite texts on learning materials development. 386 pages in length and covers every aspect of producing self-instructional materials. Should be in every guide writer's reference library. Great value.